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Diagnosis and Treatment of Periodontoclasia*

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In the examination of periodontal lesions the following steps should be taken by the operator in order to assure success:

(1) Complete x-ray examination. This is essential in order to obtain a fair knowledge of the depth of the pyorrhea pockets, the extent of absorption of the alveolar process, and the existence of any defects in the teeth.

(2) Thorough examination of the mouth and the surrounding tissues, all pathological findings being recorded on charts, such as improperly constructed bridges, fillings, inlays or plates, missing and broken-down teeth. This should be followed by a test of the vitality of the teeth by means of the pulp-tester.

(3) Impressions of both upper and lower jaws should be taken and models constructed in order to check up each step in the treatment.

(4) Case history. This is necessary in order to determine if there exists some unknown factor that may be directly or indirectly responsible for the diseased condition. It is also advisable to make a urine analysis and a blood test and, if any irregularity is thus detected, to refer the patient to an internist.

After these preliminary steps have been taken, treatment should be instituted along the following lines:

(1) The production of a hygienic condition of the mouth and the surrounding tissue. This can be accomplished by a thorough prophylactic treatment and the institution of a correct mouth toilet. The dentist not only should instruct the patient how to clean his teeth and soft oral tissue properly, but should actually demonstrate the method upon his own mouth or that of the patient in order to be sure that his instructions are comprehended and followed.

(2) Extraction of all teeth that have been previously condemned. This eliminates just that much infection from the oral cavity and removes the danger of systemic intoxications from the teeth most likely to produce it. Also, all bridges, fillings, inlays and crowns that are producing pathologic conditions should be removed. A word of caution—

* From a clinic before the First District Dental Society, New York, December 7, 1927.

remove only such teeth as are absolutely beyond repair and only such bridges as are doing injury to the tissue.

(3) Correction of traumatic occlusion. In order to carry this out satisfactorily, a very thorough knowledge of dental anatomy is required and, in addition, considerable practice and tact are necessary. The grinding of the teeth should be done with a small Miller stone kept moist with hot water, in order to give the patient as little discomfort as possible. Correction of occlusion may sometimes be carried out by restorations in the form of crowns, inlays, fillings or bridges. Insuring the proper occlusion and line of force and correcting abnormal surface-wear demand knowledge of the normal direction of the line of force. Stress on the teeth while at rest and during mastication should be placed as nearly as possible on a line with the axis of the teeth. The ability to detect the causes of abnormal occlusion is a good half of the treatment.

(4) Treatment of infected vital teeth. Special consideration should be given to the protection of the dental pulp wherever possible, and all exposed pulps should be thoroughly removed and canals filled. Neglect of necessary root-canal work may seriously prejudice the results of any periodontal treatment.

(5) Restorations should be undertaken as early as possible in the management of the case. When making restorations, it is necessary to understand (a) the importance of the normal position of each tooth in each arch; (b) the occlusal relationship of the teeth in their size and shape, so that the reconstruction will be beneficial and serviceable, no matter whether it be a filling, a crown, a bridge or a plate, or the grinding of artificial teeth; (c) the importance of replacing extracted teeth with those that may be perfectly efficient without producing a condition of malocclusion which did not previously exist or traumatic occlusion which will aggravate already existing periodontoclasia.

(6) Scaling the root surfaces. Scaling the teeth, of course, demands intelligence in the guidance of the instrument and a technical skill which is developed only by an exacting training and coordination of the brain and the hand. Scaling should be done to the bottom of the pockets, and all pockets have bottoms. The operation should be begun on one surface of the tooth and continued there until the scaling instrument imparts to the operator a smooth, firm sensation over the entire area of the denuded root surface. Then scale the adjacent surface and finish it in like manner until the teeth have been completed. Polish them with a porte-polisher, carrying pumice made into a creamy paste, until the tooth presents a smooth surface. Tape or ribbon floss may be used with the powder to polish the mesial and distal surfaces. At this point I want to mention a remark made by Professor Gottlieb of Vienna while speaking at a joint meeting of the Allied Dental Council

in New York. Dr. Gottlieb stated that 90% of the so-called pyorrhea cases would not exist if dentists would remove the deposits from the roots of the teeth and polish the crowns before making a diagnosis.

(7) When the teeth are extremely loose, it may be advisable to construct a splint to hold them together, especially in the case of the anterior teeth. There are three forms of splint: (1) Chinese grass line wound around the teeth to hold them fast and to give them a physiologic rest (such splints may remain in place for a few days); (2) a splint formed by means of orthodontic wire; (3) a more permanent splint made in the form of a pinledge attachment, constructed in the manner of a bridge on the lingual surfaces of the anterior teeth. The possibility of splinting loose teeth should always be considered before extracting them, as only too often a satisfactory substitute cannot be made.

Concerning the outcome of these measures I will quote from John Oppie McCall, who says:

"Results in the treatment of dental perioclasia depend on three factors: correct diagnosis, correct treatment, and correct prognosis. Failure to obtain results in handling cases indicates a failure in one of these three departments. In the past our profession has looked at perioclasia with a desperate but pessimistic eye, and whether success or failure attended our efforts, there seemed no explanation to offer. Our attitude was fatalistic to a degree, but with an understanding of diagnosis and etiology our attitude changes. We know that success in the treatment is possible; therefore, if we fail in a case where prognosis is favorable, we can soon determine whether our shortcomings were in the field of diagnosis or treatment. Needless to say, when we find ourselves able to diagnose a case correctly and determine definitely its etiology, we will bend ourselves with the energy and ability of our profession to attaining that perfection in treatment by which we may give our patients the oral health they have a right to expect."

SUMMARY

Knowledge of dental anatomy is essential to any intelligent treatment of periodontoclasia. The relationship of the cementum to the enamel at the roots of the teeth, the situation of the alveodental periosteum between the cementum and the alveolar process, the functions of this periosteum and the structure of the gingival tissue, all have an important bearing upon our conceptions of etiology and treatment. The peculiar character of the bony tissue of which the alveolar processes are formed and the poverty of the blood supply to this area promote absorption of the bone, which takes place physiologically but may be hastened by factors inducing pathologic conditions.

The most important feature of the clinical picture of periodontoclasia is the gingival pocket. This pocket is the result of irritative in-

fluences, which may be mechanical, chemical or bacterial. Traumatic occlusion is the most common mechanical irritant. Streptococcal infection undoubtedly plays an important part in the etiology of pyorrhea, but there is at present a tendency to regard this infection as originating in the oral cavity in many cases where the oral condition is a result, not a cause, of the systemic disturbance.

366 Fifth Avenue.



[AN ESSENTIAL FOR SUCCESS]

If there is that in your nature which demands the best and will take nothing less, and you do not demoralize this standard by the habit of deterioration in everything you do, you will achieve distinction in some line if you have the persistence and determination to follow your ideal. But if you are satisfied with the cheap and shoddy, the botched and slovenly—if you are not particular about quality in your work, or in your environment, or in your personal habits, then you must expect to take second place, to fall back into the rear of the procession.

—WAGNER.

The Impacted Mandibular Third Molar

By Irving Salman, D.D.S., New York, N. Y.

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DIAGNOSIS

In cases of impacted mandibular third molars a correct diagnosis preceding the operation is a very important factor, as the existing conditions will be a guide for the selection of the proper technic. Radiograms are the means of a positive diagnosis.

(1) An extra-oral plate should be taken and the following diagnostic features should be considered in planning the operation:

- (a) The position of the impacted tooth in relation to the superior border of the mandible.
- (b) Its relative position to the adjacent second molar.
- (c) The comparative size of the crown, curvature of the roots, division of the roots, and whether there is a thick septum.
- (d) The amount and character of the osseous tissue surrounding the crown of the tooth.
- (e) The presence or absence of any space between the second and third molars which might be used for the entrance of elevators.
- (f) The condition of the second molar and the amount of supporting bone.
- (g) The presence of any pathology around the crown of the impacted tooth.

(2) For details a small intra-oral film should be taken.

(3) A No. 2 bite film should be taken to show the position of the impacted tooth in the arch, whether it is buccally or lingually displaced, thus enabling the operator to determine the amount of bone that can be used as a fulcrum.

Operations should be planned so that no organ having functional value is mutilated or sacrificed in the removal of impacted third molars. Some operators believe in the extraction of the second molar to facilitate the removal of the imbedded third molar; others advocate the extraction of the second molar to enable the third molar to erupt and take the position of the second molar. The latter method does not hold true, and as proof we find impacted third molars in edentulous mouths.

There is an erroneous idea with some that the time element is the important factor in the removal of impacted teeth. It is often said that an impacted third molar can be removed in a minute by some dentists. Rapidity consistent with clean surgery is always desirable, but speed at the expense of good surgery will not produce the best results. With a proper diagnosis and mastering of certain technic, type impac-

tions can be removed in about the same time that it takes to make a so-called simple extraction.

CLASSIFICATION OF IMPACTED MANDIBULAR THIRD MOLARS

The operative technic for the removal of these impacted teeth varies with the existing conditions. To simplify the teachings to students and the presentation of this subject, Leo Winter, Professor of Oral Surgery at the New York University College of Dentistry, in his book on *Exodontia*, has classified impactions in two main groups:

(1) Tissue impactions—where the crown of the tooth is directly beneath the soft structures. In this type of impaction the crown may be:

- (a) Inclined toward the second molar.
- (b) Vertical.
- (c) Inclined toward the ramus.
- (d) Horizontal.

(2) Bony or true impactions.

- (a) Where the crown is above the superior border of the mandible, and the anterior portion of the crown is exposed, but the distal part is covered with bone.
- (b) Where the crown is below the superior border of the mandible and thus the tooth is completely covered with bone.

TECHNIC FOR REMOVAL

Since forcible methods should not be used, the first principle in the removal of impacted third molars is the removal of any surrounding bone which may seriously interfere with the elevation of the tooth without the use of forcible methods.

Tissue impactions, where part of the cusps of the crown is exposed, and where the overlying soft tissue is flabby, so that it can readily be pushed back after the tooth is elevated, no incision is necessary. A spear-pointed elevator is best indicated here. Place the elevator along the mesio-buccal side of the impacted tooth and drive downward by either hand or mallet force, using the border of the mandible as a fulcrum, and not the second molar. The tooth will elevate in its socket if the force of the elevator is directed upward and slightly backward. When the tooth is thus luxated, grasp it with forceps, and no force is then needed.

Where the overlying soft tissue is tense, make an incision on the crest of the ridge before using the elevator, to avoid undue laceration of the overlying tissues.

Where, upon clinical examination, there is no sign of any part of the crown being exposed, an incision is made on the center of the ridge

and brought forward and downward, but avoiding the gingival margin of the second molar. Push back the muco-periosteal flap and then insert the elevator as described above.

Where the roots of the impacted tooth have considerable curvature toward the distal, or where in the horizontal type the crown is wedged under the distal surface of the second molar, it might be necessary to relieve some bone from the anterior border of the ramus either by chisels or by surgical burs to allow for the elevation of the tooth backward and upward.

BONY IMPACTIONS

From the radiogram the bony impaction should be carefully studied and a plan of operation outlined. Note approximately the amount of overlying and surrounding bone it is necessary to remove. The technic for the removal of impactions of the bony type is described in the following report of a very unique case.

CASE REPORT

INFERIOR DENTAL CANAL RUNNING THROUGH AN IMPACTED MANDIBULAR THIRD MOLAR

History.—Patient, male, M. K., aged 35, referred with x-ray lateral plate. He had suffered from headaches and buzzing in the left ear for the past four or five years. He was thoroughly examined by physicians, who could not find any apparent cause. His dentist radiographed his teeth, and the radiographic series revealed impacted left maxillary and mandibular third molars. The dentist advised the removal of these teeth and checked up with an extra-oral plate (Fig. 1).

Radiographic Interpretation.—The radiograms showed a deep-seated impacted mandibular third molar (Type 2, b). Unfortunately this is not a true picture, due to the overlapping of the spinal column. The lower third of the apices cannot be clearly seen.

Technic for Removal.—Under local anesthetic the mucoperiosteal flap was retracted and by use of chisels and surgical burs the bone covering the occlusal surface and some of the anterior border of the ramus was removed.

In this type of impaction some operators advocate the removal of the entire buccal plate before the tooth is luxated. This destruction of bone is needless. The bone was removed buccally for about one-half the length of the crown, which exposed the widest portion of the tooth. Then with a spear-pointed bur the bone was grooved mesially to the third molar (note in the radiogram the space between the second and the third molars), and with a slight mallet force a spear-pointed elevator was forced down along the mesio-buccal side of the third molar. With



Fig. 1

Plate showing impacted maxillary and mandibular third molars.

the border of the mandible as a fulcrum the tooth was elevated. The elevator had no difficulty in penetrating the bone, because the osseous tissue adjacent to the tooth was of the spongy variety, whereas the outer layer, about $\frac{1}{8}$ inch in thickness, was of hard, ivorylike consistency.



Fig. 2

Plate showing mandibular third molar socket.

Following the removal of the tooth, there was considerable bleeding from the socket. This was controlled by direct pressure. Examination of the tooth showed a canal going through the roots mesio-distally. The nerve ends were approximated as closely as possible and a dressing was inserted.

A check-up radiogram (Fig. 2) shows the true position of the tooth, and you can note where the roots in developing had formed around the inferior dental canal, which ran through the roots of the impacted third molar.



Fig. 3

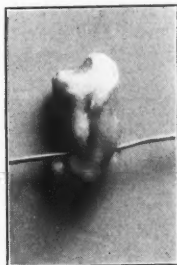


Fig. 4

Figs. 3-4

The extracted tooth, showing the course of the inferior dental canal.

It is now four weeks since the removal of the tooth. The patient has completely lost the buzzing in his ear, and his headaches also have disappeared. There is a slight parathesia of the lower lip. The remaining teeth on the left side respond to the galvanic vitality test.

160 Wadsworth Avenue.



A Simple and Accurate Impression Method for Cervical Cavities*

By Alfred Walker, D.D.S., F.A.C.D., New York, N. Y.

With the aid of the window tray designed by the author, the operator is enabled to secure quickly and easily an accurate modeling compound impression of cervical cavities that may extend under the free margin of the gum.

Having prepared the cavity for either a gold or a porcelain inlay (Fig. 1), proceed as follows:

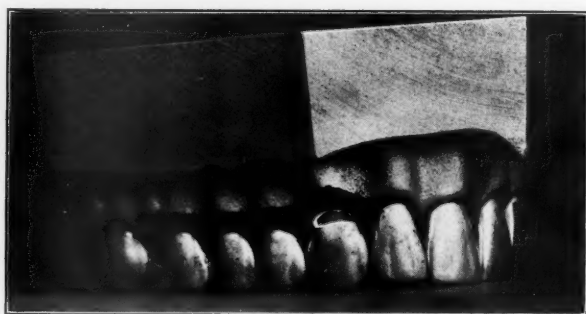


Fig. 1
The prepared cavity.



Fig. 2
Prepared trays.

From a sheet of 30-gauge German silver cut a tray to the shape illustrated (Fig. 2). This tray should be wide enough to extend slightly beyond the mesial and distal margins of the cavity.

The curved edge of the tray should conform to the arch of the neck of the tooth as determined by the gum margin. With a small bur a hole

* From a clinic before the First District Dental Society, New York, December 7, 1927.

is drilled in the tray one or two millimeters inside the arched margin and is enlarged with a fissure bur to approximately the size and shape of the cavity. This window should not be larger than the cavity and may be slightly smaller.

Next bend the tray to the approximate shape of the tooth, but do not burnish nor fit it too closely, as the tray should stand off slightly from the tooth when placed in position for taking the impression.

On the concave side of the tray, immediately around the window margins and over an area of about two millimeters or more, apply a thin film of modeling compound. This may be done by heating the tray, applying a small quantity of compound, and heating the tray again to insure the adherence of the compound. The compound should not block the window and should barely cover the metal; if it is too thick, it may be pared down with a sharp knife. This completes the window tray.

The impression is taken by passing the tray under the free margin of the gum until the cavity is visible through the window. The tray is



Fig. 3
Finished impressions.

held in this position with one hand while a modeling compound cone is softened to the desired consistency and is forced into the cavity through the window and held in position under pressure until chilled. When removed, the impression is complete (Fig. 3).

The use of the window tray as described prevents the gum from being drawn over the cavity margins and enables the operator to secure an accurate impression of the floor, walls and cavity margins easily without the necessity of packing back the gum preliminary to impression-taking.

100 West 59th Street.



The Rise and Fall of Oral Hygiene in Bridgeport

By George Wood Clapp, D.D.S., New York, N. Y.

SECOND ARTICLE

PREPARATIONS FOR COMMUNITY SERVICE

With the institution of controlled oral hygiene and personal instruction for all his patients, the character of Dr. Fones's practice changed from one in which he was waging a continuously losing battle against the agents of destruction to one in which, fighting with the constructive forces, he waged a winning battle in behalf of oral and general health. Repeated individual victories in his own practice, compared with the defeats continuously suffered by his father and his friends in the profession, satisfied him that no amount of dental repair work for either adults or children would ever stem the apparently continuously increasing tide of dental decay. He gradually came to feel that if the mouths of children could be kept clean from an early age, many of the most serious dental and bodily ills could be avoided, and that dentistry must find some way to render this service to all children. In 1911 he wrote as follows:

"Like an immense flood, dental caries has come in with civilization, and that flood has now become so great that thirty-five thousand dentists of this country, practicing chiefly along the lines of repairing damages, might just as well try to sweep back the ocean with a broom as to try to confine their efforts to operative work alone. . . .

"Suppose it were possible to restore all these mouths to a sound and healthy condition—in less than five years a new crop of thousands and thousands of cavities would have again developed. Why? Because the dentist has made but little effort to treat and educate his patients along the lines of prevention."*

Do not understand that he thought such cleansing would be the whole answer. He did not then and does not now, because observation had led him to believe that oral and dental diseases are expressions of systemic deficiencies, probably largely nutritional in origin. But the oral prophylaxis was an important part of the answer and much easier to get at than the underlying and fundamental things, to which attention would have to be given later. He therefore began to agitate for the introduction of oral hygiene into the public schools.

Dr. Fones was much better fitted than most dentists to initiate such an agitation and carry it to a successful conclusion. His father, Civilion Fones, D.D.S., with a vision greater than that of most members of our profession, not only had served his clientele well as a

* *Dental Items of Interest*, January, 1911.

dentist and his profession well as a member of the Connecticut State Dental Commission for two years, one as president, and in the presidencies of the Connecticut State Dental Society and the Connecticut Valley Dental Association, but had served his city well, first as councilman, then as alderman and lastly as mayor of Bridgeport for two terms. In homes of the right sort children probably learn quite as much by association and absorption as by direct instruction, and it was impossible that a boy of such keen perceptions as Alfred should live in a home where professional service and public service were fundamental activities without growing up to feel that in every important activity the public welfare was to be sought and served. To this unconscious inspiration was added the gift of getting things done, for that power is a gift, and some have it and do things and some have it not and merely beat the air.

So he began his appeal for funds with which to show what could be done for the health of the children. He was held by his program to the securing of these funds from the city. It would have been quite easy to obtain funds from private sources, for only a few thousand dollars were needed and among his patients were several who were the recipients of such personal benefits from controlled dental hygiene that they were willing to provide the money to show the community what could be done.

The local dentists had already done something to educate a part of the public. As president of the Bridgeport Dental Society in 1909, Dr. Fones organized a group of dentists, each of whom was to take ten boys to his office and put their mouths in good condition. At the same time these boys were to be taught the principles of oral hygiene. It was felt that they would be centers of interest and information in their schools and homes. They doubtless were. To stimulate public interest further, Dr. Fones wrote a series of articles for the local newspapers and gave public clinics. Other members of the dental profession with convictions like his own came to Bridgeport and gave public addresses. Among these were Drs. T. P. Hyatt, M. L. Rhein and G. B. Palmer.

But Fones's plan went much farther than this initial effort. He realized from the beginning that this was a work of education. It had to begin with the powers at the head of municipal affairs, to utilize activities possible only to the Board of Education, and to awaken the public to personal efforts in its own behalf, or it could never reach full fruition. The best way to begin with the authorities was to get them to put some money into the plan, do some of the work and take an interest in what was accomplished.

To the proper understanding of some quotations which are to follow, it is necessary to know that from 1909 to 1913 Dr. Fones waged an active campaign of public education in the newspapers by

means of articles and letters. Some of the papers gave his material prominence and supported it with favorable editorial comment. Some of the other local dentists were opposed to Fones's plan and published articles saying that it was impracticable. A writer who styled himself *Zaccheus* wrote in Fones's behalf a number of interesting articles well suited to popular consumption. In May, 1911, writing in *The Bridgeport Sunday Post* under the title *Greek Roots Are Less Vital Than Those of Your Children's Teeth*, he copied from *Life* the cartoon shown below and quoted the following paragraph:



"If we can preserve the temporary teeth by simple means, it will not be necessary for posterity to place the permanent set in a glass of water beside the Seidlitz powders every night."

Fones sought therefore to induce the Board of Education to desire a demonstration in the schools, to ask the Board of Apportionment for the necessary funds and to be willing to use them when obtained.

Here it is necessary for us to keep in mind the difference in the objects properly and necessarily sought by a Board of Education and those sought by a Board of Health. A Board of Education can properly be interested only in what concerns the cost and efficiency of education. Ill health is important if it increases costs or reduces efficiency. Health is important if it reduces costs and increases efficiency. It was Fones's task to inspire the Board of Education with his own conviction that oral hygiene would lower the costs of teaching by making children physically better able to take instruction.

If a Board of Education is interested in health only as a means to an end, and a Board of Health is interested in health as its chief end, why did Fones go to the Board of Education instead of to the Board of Health? For four reasons, as follows:

(1) If sufficient funds were to be continuously obtained from the city to maintain oral hygiene for all the children in the city schools, oral hygiene must be an economy, as compared with oral "unhygiene," and the economy in terms of money must be clearly demonstrable.

(2) If the burden of caring for all these mouths was to fall forever on the preventive dental clinic, the cost would mount as the number of school children increased, until a saving in dollars and cents might be impossible. But if through educational work in the schools this burden could be shifted to its proper place, the home and the child, the economy might eventually be very great.

(3) The instruction by which the knowledge could be given to the children and through them to the parents could not be imparted in the clinic while the teeth were being cleaned. It would have to be repeatedly given in the classroom. That was evidently an educational activity.

(4) If clearly demonstrable economies were to result from the preventive dental clinic in the schools, they would be visible in a lowered cost of education or in more efficient working of the educational system. That is, fewer children would have to repeat their grades or be *re-educated*, as is the technical term. If a few years of preventive dentistry in the schools showed that less money was being spent for re-education, in proportion to the school population, and the lessened expenditure could be directly connected with improved health and efficiency in the pupils, the demonstration of economy would be complete and unquestionable. A few years later the Superintendent of Schools was to write that the city could well afford to spend ten thousand dollars per year for any measure which would decrease retardation in the schools by one per cent.

To persuade the Board of Education to what he considered the right point of view, he used three forms of influence: (1) figures showing

very great retardation of pupils in the first three grades of the public schools and a disturbingly high cost for re-education; (2) the results of an examination of the mouths of children in several public schools by public-spirited dentists, showing that in the schools frequented by children from well-to-do-homes 90% of the children were in serious need of dental attention, while in the schools frequented by the "foreign" elements 75% of the children needed such service; and (3) an offer of rooms, rent free, in a new building of his own, down-town, for the conduct of an educational and preventive dental clinic.

In January, 1913, the Board of Education asked the Board of Apportionment for \$12,000 in order to demonstrate the value of such a clinic in the schools. Immediately thereafter Dr. Fones arranged in his office a demonstration before members of the Board of Education, the Board of Apportionment, the mayor and principals and teachers from several schools. Perhaps this event may be best described by extracts from one of the Bridgeport papers, the first part of the text being changed and condensed a little for the sake of brevity:

"Five weeks ago Dr. Fones appeared before the Board of Education to advocate the establishment of a preventive dental clinic in the schools of Bridgeport. He had with him two little boys who had just come to him from one of the schools for treatment. To say that they had revolting mouths would be putting it too mildly. The youngsters' teeth were covered with green mold and some of the teeth were as black as coal, while others had rotted away even with the gums. Dr. Fones asserted that if these boys had been taught to take proper care of their teeth when they first entered school, their teeth would have been saved. He still had hope of saving the molars, except those which had rotted completely away. The members of the board were skeptical and wanted to be 'shown.'

"Dr. Fones certainly showed them yesterday. He had the same two boys among the children whose mouths he showed at the clinic.

"The change in the conditions of the boys' mouths bordered on the miraculous. With three treatments of simply cleaning and polishing, the doctor had completely changed the condition of the teeth. One could hardly believe that they were the same two boys. Instead of disease-breeding, foul-smelling, decaying teeth the boys now had as fine sets of pearly white teeth as one would care to look at. The dirty greenish black mold and tartar had all been removed, the cavities had been filled with cement and, in short, the condition of the boys' teeth had been changed entirely. It was the most convincing demonstration of what can be done for the children's teeth ever shown in this city.

"And the boys' school teachers, who were present at the clinic, stated that not only had the boys improved in their studies since

having their teeth properly taken care of, but they had improved morally and physically. They had never seemed to care how dirty their faces were when they came to school, or whether their hair was combed or not. Since they had been taught that cleanliness of their teeth did much toward making their bodies healthy, they naturally came to a conclusion that a clean face, hair and body would help too, and although, as Dr. Fones expressed it, 'the towel and comb which they used for their first 'cleaning up' belonged to them when they had finished,' they have ever since kept themselves fairly clean and were better in every way for it. As Johnny, one of the boys, said, he 'felt better all over' since he had had his teeth cleaned and had begun to wash himself regularly.

"Dr. Fones said that the boys felt so benefited by the clean teeth that the day after their first treatment the youngsters returned, leading two companions by the wrists, bringing them to the doctor to have their teeth cleaned also, and since then have brought a number of other little ones from the same school for similar treatment."

The newspaper article goes on to say:

"There were about twenty children ranging in age from four to thirteen years gathered together in the doctor's anteroom at this demonstration. The conditions in some of the mouths of some of these children were worse than awful, and they were not special cases, either, but cases selected at random from schools at the very opposite ends of the city."

There was a touch of pathos and of tragedy in connection with one of the boys present. He had a number of dental abscesses. The condition was of rather long standing, and, although every effort was made to recoup his strength, the inroads upon it had been too great and within six months he died of heart failure, for which there was no other known cause.

The intensity attained by the campaign to secure municipal participation is illustrated by an occurrence over which all who took part in it now laugh. At that time the mayor of the city was personally satisfied as to the importance of oral hygiene, but the doctor thought he was not exercising in behalf of hygiene in the schools as much influence as his position and his knowledge would permit.

One day there came into Dr. Fones's office three children of one family whose mouths presented conditions which the doctor thought might influence the mayor to show a little more vigor in forwarding a good cause. He therefore called the mayor on the 'phone and asked him to come to the office immediately to see these children. The mayor protested that he could not leave the city affairs for such a thing as that, but, under the influence of forceful urging, agreed to come as

soon as he could get away from the matters in hand. He was delayed longer than he anticipated and the children were gone when he finally arrived, so it will never be known what might have happened if he had gotten there in time. But it shows the degree of pressure which for several years Dr. Fones exerted unceasingly wherever it was likely to accomplish anything.

Finally, in 1913, after three years of continuous effort, the Board of Apportionment appropriated to the Board of Education \$5,000 with which to make a demonstration of the value of oral hygiene in the public schools. And then the trouble broke out in a new spot.

Cities are run by politicians. They are, in general, much more practical people than dentists. Usually they have come to prominence by a long course of dealing with things and people as they are and not as they ought to be. They hold place and power largely by getting things for other people, the "things" being mostly contracts and jobs. Every extension of civic activities, especially every new activity, offers places for relatives and friends, and politicians seem to have unlimited numbers of both. It is well for every dentist who plans any form of community effort to recognize the power of these forces which do not appear on the surface in their true colors, because he may find his best efforts blocked without being able to find out why. And never, during his time, will he be free from this danger, no matter how successful his efforts may be. Perhaps the greater their success, the greater this danger. As this story unfolds, it will seem that politics and politicians alternately hindered and helped and finally came very near to destroying one of the most constructive community activities ever undertaken.

Dr. Fones's plan for an educational demonstration in the schools did not meet with the approval of the politicians because it did not offer any chance for jobs, for contracts and for profits. Their relatives and friends were not qualified to participate in the work that was outlined, they were not prepared to qualify to participate, and no material nor land nor buildings were to be purchased for the work.

From a very early period in the history of Dr. Fones's efforts to secure municipal activity, politicians whose favor would have done much to expedite his success would often say, "If you want to hire a few dentists to take care of the teeth of children too poor to pay, we are willing to appropriate money for it, but we cannot see anything in what you want to do." A few dentists hired in this way would have meant some well-paid jobs to be apportioned among them. The proposed program meant nothing.

On the Board of Education at this time there was a dentist and, naturally enough, the Board of Education placed him in charge of this new undertaking. This would have been fatal to the plan for which so hard a fight had been made, because, however excellent his personal

and professional qualifications, he was young, but little experienced in the practice of his profession, and wholly unprepared to assume the direction of such a demonstration as must be made if success were to crown the efforts. His lack of mental preparation for this special campaign was shown by the fact that his conception of the proper use of the money was to hire a school dentist to fill existing cavities and extract teeth. Dr. Fones was compelled to say to the Board of Education that it would be impossible for him to give his time, money and energy to this undertaking to the extent that he was sure would be necessary unless he was placed in charge of the work. The Board of Education was unwilling to shift the responsibility from one of its own members to Dr. Fones, so the undertaking languished through the year 1913. But Fones, inspired by the conviction that a way out of these difficulties would be found, went steadily ahead with the organization of the course for dental hygienists in order that, when the opportunity came, it might find him prepared.

In January, 1914, the Board of Health, under the influence of Wm. McLaughlin, D.D.S., a member, petitioned the Board of Apportionment for the money, saying that it would be glad to make the demonstration Dr. Fones desired. The Board of Apportionment reappropriated the money for use in that way. Dr. McLaughlin selected a committee including three dentists besides himself—A. C. Fones, R. H. W. Strang, T. A. Ganung—and a physician, F. W. Stevens. At last the enterprise was under way.

(The Third Article will relate how Dr. Fones recruited a brilliant corps of teachers for the first class of dental hygienists and enlisted the interest of the thirty-three capable young women who composed it. Some of the efforts on their part necessary to secure the instruction are told.)



Special Teeth for Cross-Bite Cases

By Alfred Gysi, D.D.S., Zurich, Switzerland

Professor of Prosthetic Dentistry, University of Zurich
(Literary Collaboration by George Wood Clapp, D.D.S.)

EIGHTH ARTICLE

ELEMENTS OF THE PRINCIPLES OF CROSS-BITE FORM

There has purposely been reserved for the last article a brief description of the principles and methods by which cross-bite teeth have been formed. Because this series is intended for dentists who have neither time nor inclination for the highly technical studies of tooth forms and functions in which I have spent much of my professional life, this description will be made as elementary and easy of understanding as possible. Many of the points which have been most abstruse and baffling are entirely omitted. The purpose is merely to enable dentists who are of a studious type of mind to absorb readily the only principles upon which I believe artificial teeth can be formed if they are to exhibit the greatest degree of satisfaction in use.

We must accept edentulous patients as we find them, recognizing that whatever we can do is merely repair work, and that anything we may construct will operate under quite different principles of retention and force transmission from those which obtained, in some cases at least, with the natural teeth. Any large number of edentulous patients will probably exhibit among them almost every asymmetry in position and functions of the two maxillae. If we begin our study with the asymmetrical cases, we shall speedily encounter so many contradictory and puzzling factors that we shall get nowhere. But if we begin with a study of a perfect natural dentition, we may find operative there principles which we can successfully apply to the construction of artificial dentures. As was related in the *Fifth Article*, one outstanding characteristic of the perfect natural dentures described was such contact of the maxillary and mandibular teeth as to establish perfect balance of the dentures in all positions of occlusion and not only distribute the force of mastication over a large tooth area but insure maximum contact of opposing facets during the return of the mandible from all its excursions. It is apparent that if such natural dentures habitually exercise a force and an efficiency which is practically unknown to natural dentures without the balance and maximum cusp contact, the principles of perfect balance and exact facet-interaction are likely to be very important in the construction of artificial dentures.

THE PRINCIPLES OF TOOTH FORMATION

The principles by which artificial teeth should be formed are iden-

tical for normal-bite teeth and cross-bite teeth. Their application must be such as to produce forms which will exhibit the proper interactions in the averages of the four kinds of movement to which they will be subjected, and be capable of alteration so that they will function at least fairly well for patients whose masticating movements may be quite different from the average. It therefore becomes highly desirable to record, study and understand the extreme and the average mandibular movements.

The movements of the mandible to which such teeth will be subjected can be most easily recorded on a vertical plane at the two condyles and on a horizontal plane at the mandibular incisor point. The records of the lateral movements of the incisor point can be most satisfactorily made by fitting a large number of patients with well adapted occlusion rims, attaching a horseshoe plate to the maxillary rim and an incisor path marker to the lower rim, and causing the patients to move the mandible in extreme protrusive and lateral movements, keeping the rims in contact.

There are at least three important methods by which the sagittal inclination of the condyle path may be registered, the intra-oral method of Luce, the extra-oral method which I devised and which is illustrated in Fig. 122 of the book *Prosthetic Articulation*, and the check-bite method. For the purpose in mind at this time, the extra-oral method is preferable. The method for recording the sagittal inclination of the incisor path need not be described here, but it is similar in principle to the extra-oral method.

As was explained in the *Fifth Article*, the extreme movements are the only ones that can be clearly identified, and if tooth forms suitable for such movements are made, they will be suitable for all intermediate movements also.

Much of the finishing work in carving teeth can be done by hand, but the *primordial* forms, meaning thereby the basic forms of the teeth, can be carved only in and by an articulator that is capable of reproducing, with at least approximate accuracy, the more important movements of the human mandible. If artificial teeth are to be carved which will be satisfactory under any other than strictly average conditions, the articulator must be susceptible to adjustment in at least some of the more important elements of the mandibular movements. The three most important elements of such movements, in the order of importance from greatest to least, are the lateral movements of the mandibular incisor point, by which movements the Gothic arch is formed; the sagittal inclination of the condyle path; and the sagittal inclination of the incisor path.

It is highly desirable that the decision as to the size of the included angle of the Gothic arch and the sagittal inclinations of the incisor

and condyle paths to which the articulator is to be adjusted for the carving of the primordial forms should be dictated by long practical experience in the making of artificial dentures. Forty years of active participation in such work have convinced me that a Gothic-arch included angle of 120° and sagittal inclinations of 30° for the incisor and condyle paths will produce the most satisfactory forms of teeth for patients with high, firm ridges, and that a reduction of the sagittal inclination of the incisor path will produce forms that not only are more suitable for patients with low or flabby ridges and flat vaults but may, in the end, be more advantageous for many of the patients with high, firm ridges. I believe that only under exceptional conditions will dentists be justified in using teeth with deeper bite than is produced by the 30° sagittal inclination of the incisor path, and that even under those conditions the use of the deeper-bite teeth will eventually work more harm than good to the patients.

My belief that deep-bite teeth are generally injurious and my preference for very shallow-bite bicuspid and molars, which grows stronger as my experience increases, are based on the fact that only very rarely can artificial teeth be so perfectly occluded that there will be no motion of the dentures upon the ridges in any of the movements of mastication. When deep-bite teeth are used, such motions will be much more pronounced and effective than when shallow-bite teeth are used. Under the influence of these severe movements, one of which is a twisting motion well suited to cause resorption of the supporting tissues, the ridges will be resorbed in a much shorter time than under the much less severe movements which occur when shallow-bite teeth are used.

As a result of studies that have been practically continuous since I carved the first series of normal-bite bicuspid and molars, I have been able to produce occlusal forms of cross-bite teeth which should cause a minimum amount of movement of the dentures upon the ridges when articulated with a reasonable degree of skill.

CARVING TEETH IN AN ARTICULATOR

If in an articulator with a restrained movement, which accurately reproduces the average of the movements described above, a short knife in the shape of a shark's tooth be placed at the tip of a cusp of a maxillary molar, with a flat block of plaster immediately below, and every possible movement of the mandible be made, three facets will result, which will center at a common point, as shown in Fig. 58 (same as Fig. 55). These facets form the negative of one corner of a duodecahedron.

THE FORM OF THE HONEY-BEE'S CELL

The form of the honey-bee's cell is recognized by scientists as the

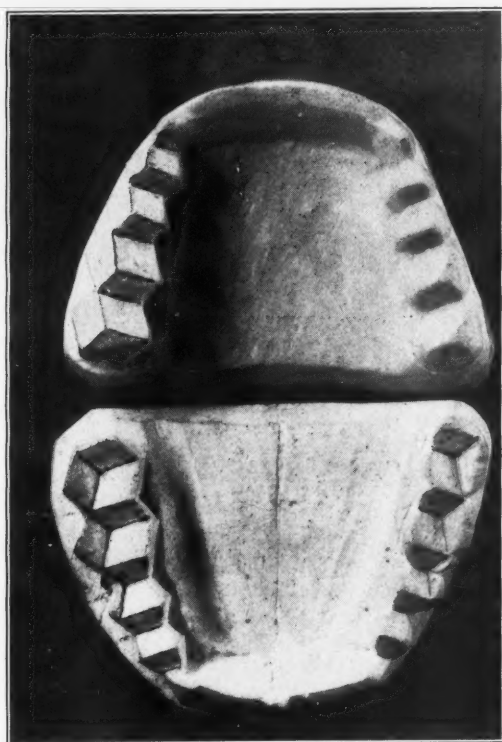


Fig. 58 (same as Fig. 55)

PRIMORDIAL FORMS OF CROSS-BITE BICUSPIDS AND MOLARS

This form, which has been shown as Fig. 55, results when a properly shaped knife, in an articulator which reproduces average movements, is allowed to cut into a flat block of plaster.

most perfect known for the support and distribution of pressure; that is, the form itself is more stress-resisting than any other, and when material is built into this form, less of it is required to resist a given strain. This form is famous among engineers, because with it the honey-bees support a maximum weight of honey with the smallest possible quantity of wax as a framework. If the honey-bee's cell be filled with plaster, which is removed when hard, the plaster will be in the form of an hexagonal prism with a three-sided pyramid at each end. Each side of the pyramid will be rhombic (Fig. 59).



Fig. 59

If a honey-bee's cell be filled with plaster, which is removed when hard, the resulting form will be that recognized by engineers as the most perfect known for support and distribution of pressure.

The persistence of this form in nature and its occurrence when opposing forces are left to adjust their own balance can be demonstrated by a simple experiment. If a bottle with a rather large body and a small neck be filled with dried peas all of one size then filled with water, and water be added from time to time as it is taken up by the peas so that the bottle is kept full, it will be found that at the end of from twenty-four to forty-eight hours the peas will have pressed each other into the form of a pentagonal duodecahedron.

The articulator which I use for this work, with a knife attached and moved as has just been described, will carve in the plaster block the exact negative of the three-sided prism at each end of the honey-bee's cell. The practical value of this form in artificial teeth is that it distributes in three directions the force to which teeth are subjected during mastication and probably subjects the tissues that support the denture to the lightest pounding possible under these conditions. As the total force applied to a denture in twenty-four hours may easily be in excess of fifteen tons, a wise distribution of it acquires a double significance when one reflects that these tissues were never intended by nature to support the force of mastication.

The fact that the movements of this articulator represent the average of a large number of movements, and that they produce, with the aid of the knife attachment, one corner of such a duodecahedron, and that this form, when incorporated in artificial teeth, can be shown to be harmonious with the average mandibular movements, is evidence that it is also harmonious with the general plan of the human masticating apparatus. This is of much greater significance than can be appreciated at a glance, because it insures that the force exercised in mastication, which is considerable in amount at each closure of the jaws and is repeated thousands of times daily, will be distributed in the manner which will be least destructive to the tissues that support the denture.

This form plays a most important part in securing stability of the dentures because, when teeth are of this form, it is easy for dentists to secure at least three points of contact during lateral occlusion and generally a much more extensive contact during the return of the mandible from lateral excursion. Since the effective mastication of food is dependent upon the crushing of soft foods and the cutting of fibers by the opposing facets during the return from lateral excursion, the greater contact which this form of teeth permits is believed to exhibit the maximum masticating efficiency of which artificial teeth are capable.

(To be continued)



[EXAMINE EXTRACTED TEETH]

After every multiple tooth extraction, the teeth should be counted as the nurse counts the sponges of the abdominal surgeon. Fragments of teeth and fillings should be matched for missing fragments. If any tooth, filling or fragment is missing, roentgen ray examination and watching of the stools should be advised.

—JACKSON.

Oral Surgery In Practice

By James L. Zemsky, D.D.S., New York, N. Y.

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(Continued from January)

ACUTE ALVEOLAR ABSCESES AND OTHER INFLAMMATORY AND SUPPURATIVE PROCESSES OF DENTAL AND ORAL ORIGIN

¶203. Some operators, hoping to avoid a scar that may follow an incision of a swelling on the outside of the face, resort to application of heat and poultices. This is a dangerous procedure, for in many instances it facilitates the spread of the infection, besides drawing the pus toward the skin, where upon rupture of its own accord exuberant growth of granulation tissues produces ugly scars.

¶204. Every extraction presenting an infection should be treated in the same manner as any other septic surgical case. The pus should be drained, granulosomatous tissue thoroughly enucleated, and the wound protected from the filth and invasion of organisms ordinarily found within the mouth. A strip of iodoform gauze packed into the wound gives the desired results. (See Figs. 188-191.)

¶205. Extensive curettage in cases of acute infection in the mouth is very dangerous. Packing and drainage are all that should be done until the case becomes subacute or chronic, when a thorough curettage is indicated.

¶206. Cases of acute abscesses around the jaws, causing large swellings of the face, require early incisions for the purpose of either evacuation of pus or depletion of the congested tissues, if this cannot be accomplished through extraction of the teeth causing the condition. (See Figs. 188-194.)

¶207. Failure to incise an abscess often causes the pus to burrow into surrounding tissues, with serious complications. (See Figs. 194-195.)

¶208. Swellings of the face due either to infection in the teeth and their surrounding structures or to any other cause require *cold* applications in connection with whatever other treatment there may be.

OSTEOMYELITIS

¶209. Osteomyelitis is a destructive and at times a fatal disease, therefore early treatment is very important to arrest progress of the infection before it establishes itself. (See Figs. 196-199.)

¶210. More advanced and chronic cases of osteomyelitis present a characteristic appearance of bone structure in the roentgenogram. However, too much reliance on the *absence* of roentgenographic findings in the early stages of the disease is to be avoided. (See Figs. 200-205.)

¶211. While it is advisable to wait for natural separation of a sequestrum rather than to resort to radical removal of the diseased bone, a period of about six weeks is a sufficient length of time to wait. At the expiration of this period an exploratory open operation, consisting of the removal of all dead bone, is indicated.

¶212. In those cases where an unsightly distortion of the face and interference with normal function are anticipated after the removal of a partly separated sequestrum, it is justifiable to allow these to remain until new bone is formed.

¶213. Cases of acute osteomyelitis of the jaw in which pus is seen welling up around the teeth and collecting beneath the surface are best treated by immediate extraction of the teeth. This is one case of acute infection that is materially benefited by extracting the teeth, because the drainage is thus made more adequate. (See Figs. 206-210.)

¶214. Application of heat or poulticing for the relief of pain about the face during the incipient stages of infection is an exceedingly dangerous practice because of the possibility of spreading the infection, which may prove highly destructive.

¶215. While there may be certain cases of acute infection in and about the jaws that could be benefited by the removal of a tooth, such a procedure, generally speaking, is neither safe nor advisable. (See Figs. 206-210.) A number of cases have been observed in which such extractions proved harmful by permitting the infection to spread throughout the jaw and the tissues and, at times, into the system.

¶216. Cases of osteomyelitis should be treated by establishing proper drainage. For this purpose free incisions are made within the mouth or extra-orally at those points where any collection of pus is present or may be expected to take place. Such incisions must be deliberate, going down through the periosteum to the bone. (See Fig. 211.)

¶217. Cigarette drains, draining tubes, iodoform gauze strips of the various types should be inserted into the incisions to maintain the established adequate saline drainage. Irrigations are very helpful in this connection. (See Fig. 211.)

¶218. Cases of chronic osteomyelitis which discharge pus continually or swell up periodically, accompanied by pain, require an operation, for pockets of infection that have not been previously located and eradicated are usually present.

The illustrations follow:



Fig. 188

Photograph of a patient, 26 years old, showing a swelling of the lower part of the left side of the face and the lower lip. Clinical examination disclosed fluctuation in the fold in the region of the left mandibular canine and premolars. The first molar had a large amalgam filling and did not respond to the vitality test, but the bicuspid responded readily. Therefore it was decided that the molar was the cause of the swelling. The roentgenogram in Fig. 189 proved this diagnosis to be wrong. (See ¶204, ¶206.)

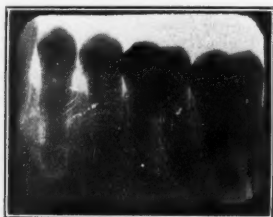


Fig. 189

This roentgenogram of the left mandibular premolars and molar of the patient in Fig. 188 reveals resorption of the mesial surface of the root of the first premolar, and the area of rarefaction involves the periapical region. This was obviously caused by a parietal infection. After an intra-oral incision was made and the pus liberated, the tooth was extracted. The swelling subsided within three days. This case once more proves the value of roentgenograms in diagnosis and therapeutics. (See ¶204, ¶206.)

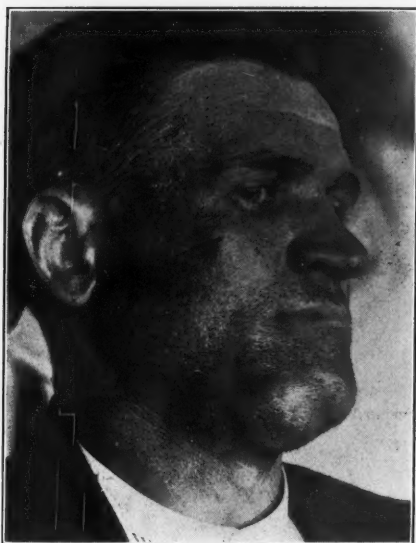


Fig. 190

Photograph of a patient, 42 years old, with a swelling under the chin. Upon clinical examination the swelling was found to be soft and fluctuating. Diagnosis of an abscess was made, the etiology of which was not determined until a roentgenogram (Fig. 191) was taken. (See ¶204, ¶206.)



Fig. 191

Roentgenogram of the region of the right mandibular canine and premolars of the patient in Fig. 190. This reveals destruction of bone distally to the canine, the tract extending toward the apex.

Operative findings consisting of opening the abscess and extracting the canine disclosed a tract leading from the gum to the swelling. A probe inserted into the pocket formed alongside the canine entered the swelling and could be felt under the skin of the chin. (See ¶204, ¶206.)



Fig. 192

Photograph of a boy, six years old, presenting a marked swelling of the left side of the face with edema around the eye, completely closing it. Examination of the mouth disclosed badly broken-down anterior maxillary deciduous teeth. A roentgenogram revealed the condition shown in Fig. 193. (See ¶206.)



Fig. 193

Roentgenogram of the patient in Fig. 192. It reveals deep caries in the crowns of the anterior maxillary deciduous teeth, with resorption of the roots of the central incisors and an area of rarefied bone involving the erupting permanent central incisor. (See ¶206.)



Fig. 194



Fig. 195

Figs. 194-195

Fig. 194 is a photograph of a girl presenting an edema of the left side of the face. Intra-orally there was fluctuation in the buccal fold, necessitating an incision for the evacuation of pus. The child's parents were reluctant about permitting this incision. Being thus neglected, the patient developed an acute periostitis involving the submaxillary region, as shown in Fig. 195. (See ¶197, ¶206-¶207.)

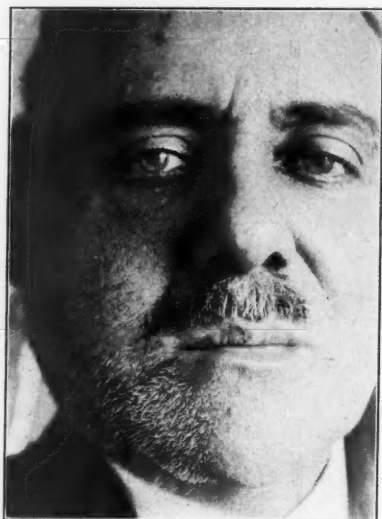


Fig. 196

Photograph of a patient, 51 years old, presenting a swelling of the left side of the face and complaining of excruciating pain in the jaw. These symptoms developed after the extraction of the right mandibular second molar. The history tells that now and then the pain would localize in some particular tooth, and the patient, seeking relief, would ask a dentist to extract the suspected tooth, only to be disappointed. Three weeks after the second molar was extracted, pus was noticed oozing from beneath the gum in that region. A roentgenogram (Fig. 197) of the right side of the mandible revealed the condition which had been diagnosed as a case of osteomyelitis of the mandible.



Fig. 197

Roentgenogram of the patient in Fig. 196, which shows the characteristic appearance of an osteomyelitic jaw. (See 1209.)

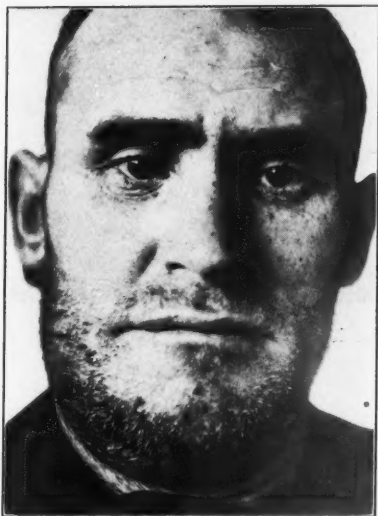


Fig. 198

Photograph of a patient, 41 years old, showing a swelling of the lower part of the right side of the face. A short time before this photograph was taken he had had six teeth removed from the right side of the mandible under infiltration anesthesia, which extraction was followed by curettage of the sockets. About a week afterward a swelling developed and three weeks later the patient was sent to a specialist, at which time a roentgenogram (Fig. 199) was taken. (See ¶209.)



Fig. 199

Roentgenogram of the mandible of the patient in Fig. 198. The islands of bone seen here are characteristic of an osteomyelitis, which diagnosis is certain from such a roentgenogram. (See ¶210.)



Fig. 200



Fig. 201

Fig. 200

Roentgenogram of a left mandibular lateral, canine and first premolar of a patient suffering severe pain in this region. This shows some alveolar resorption at the lateral, due to pyorrhea, but there is no evidence of any bone lesion. (See Figs. 201-205.)

Fig. 201

Roentgenogram of the same area as in Fig. 200, taken a week later, after the pyorrhetic lateral was extracted. This shows no evidence of bone pathology in spite of the severe pain and the extra-oral and intra-oral swelling that developed after the extraction. (See Figs. 202-205.)



Fig. 202

Roentgenogram of the same area as in Figs. 200-201, taken a week later than Fig. 201. The canine and the premolar were extracted in an attempt to relieve the patient's suffering, since he insisted that the pain was due to these teeth. Signs of breaking down of bone are already beginning to be evident here. (See Figs. 203-205.)



Fig. 203

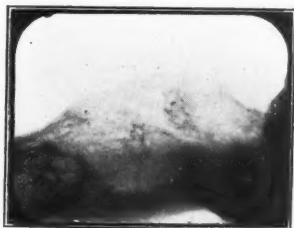


Fig. 204

Figs. 203-204

Roentgenograms of the same area as in Figs. 200-202. These show the formation of sequestra. (See Figs. 200-202 and 205.)



Fig. 205

Roentgenogram showing the appearance of bone after the sequestra in Fig. 204 had been removed. The flow of pus stopped spontaneously and the lesion healed quickly. (See Figs. 200-204.)

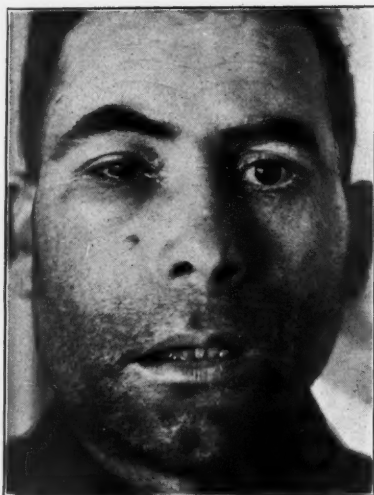


Fig. 206

Photograph of a patient, 43 years old, showing a swelling of the right side of the face. The edema is spreading over to and involving the right eyelids. The condition of the mouth and the maxillae is shown in Figs. 207-210. (See ¶209, ¶213.)



Fig. 207

Photograph of the maxilla of the patient in Fig. 206. The gums are swollen and the teeth are very loose. There is a copious discharge of pus from around the neck of the teeth. At the slightest pressure upon the gum and the teeth pus flows profusely, which condition developed spontaneously two days prior to the patient's appearance and was preceded by a stormy illness. Roentgenographic examination was postponed until the almost exfoliated centrals and right lateral were removed. (See ¶213; also, Figs. 206, 208-210.)



Fig. 208



Fig. 209



Fig. 210

Figs. 208-210

Roentgenograms of the maxilla of the patient shown in Figs. 206-207, after the very loose centrals were removed for the purpose of establishing drainage. The appearance of the bone makes certain the diagnosis of an osteomyelitis. (See ¶210; also, Figs. 206-207.)



(Photograph by courtesy of Joseph Levy, D.D.S., New York.)

Fig. 211

· Photograph of a patient presenting a case of chronic osteomyelitis of the mandible. This picture shows draining tubes in position. The safety pins facilitate the retention of the tubes in their places, which should be held by the dressing packs and bandages. (See ¶216-217.)

355 East 149th Street.

(To be continued)



Porcelain Manipulation

A PRACTICAL TECHNIC FOR THE GENERAL PRACTITIONER

By F. R. Felcher, D.D.S., Chicago, Ill.

XI

IMPRESSIONS AND MODELS

It is an important requirement in porcelain work that impressions and models should be as accurate as possible. For consistent results very little should be left to guesswork. While different methods may be employed in securing good impressions and models, a few will be mentioned at this time, with the particular recommendation of one which in the experience of the author has produced better results than the others.



Fig. 27



Fig. 28

Fig. 27

Taking the impression.

Fig. 28

The finished impression, showing the shoulder.

Commencing with the copper band—the suggestion has been made previously that the copper band be fitted before the shoulder is cut on the tooth. It is then filled with modeling compound, and a slight smear of vaseline is placed over the top. There is some mark, such as an *X*, on the labial or the buccal surface of the band.

The band is now warmed over a dry flame, and an impression of the prepared tooth is taken in the following manner:

Place the band with the softened impression material over the tooth, the *X* mark toward the front, leaving the band open at the lower end until about two-thirds of the tooth has been covered. Then place the finger over the lower end of the band, complete the impression, chill and remove. By the use of this method very little of the impression material is forced under the gum, preventing the possibility of irritation of the tissue below the gum margin. (Fig. 27.)

The band impression should show a perfect reproduction of the shoulder, which will be found to extend slightly below the end of the band rim. (Fig. 28.) If any question presents regarding the accuracy

of the impression, another impression should be taken. However, if the preliminary precautions are regarded, such as fitting the band before the shoulder is cut, the guide mark placed on the band, and the band applied open at the beginning of taking the impression, there will be more successful impressions as a result.

If the band impression is found to be satisfactory, the next step is to obtain the impression and the bite. An earlier method used, and one that some probably still use, is to take a compound impression and bite. While some results therefrom are satisfactory, there is the possibility of distortion, as well as the question as to whether the die can be accurately placed. The possibility of distortion of lingual impressions also is great.

The impression is taken in the following manner: A clean swivel impression tray is secured and the inner surface is slightly coated with vaseline. A good quality of stiff pink baseplate wax is now softened

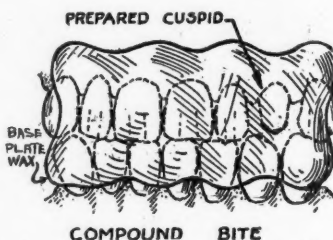


Fig. 29

Combination wax impression and bite.

and placed in the tray, and an impression of the teeth adjoining the tooth to be restored is taken. With the impression in this position the tray is then removed and the patient instructed to close into the wax. The wax is now forced tight against the front of the teeth with the fingers, and the patient is advised to press the wax against the lingual surfaces of the teeth by means of the tongue. The wax is then chilled and removed. (Fig. 29.)

Some operators prefer to take an extra band impression, which is allowed to remain, and a plaster impression is taken over it. This method has the disadvantage of the thin film of plaster between the teeth breaking away, and the operator thus finds himself about to construct a jacket crown minus accurate contact points.

The method used by the writer is one from which accurate models can be produced quickly and with more consistency than by the method just described.

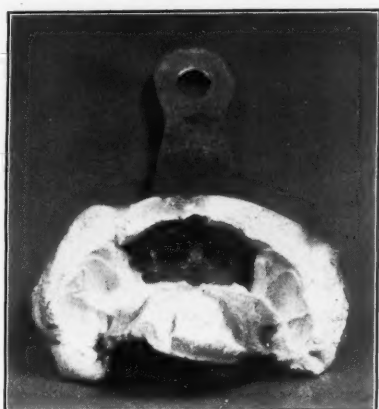


Fig. 30
Wax and plaster impression.

A good model should be one not only showing accurate contact points but producing the teeth in sharp form so that tooth contour may be easily reproduced. The impression should be definite enough so that the amalgam die will go into place perfectly. If the amalgam die is not placed far enough into the impression, or if it is placed too far or slanted in any way, the finished work will not fit in position in the mouth. This would of necessity mean grinding of the finished crown or a complete make-over of the case.

In taking the impression the use of a good inlay wax in combination with plaster is best indicated. Then a separate bite carefully obtained will enable the operator to acquire a good idea of the occlusion.

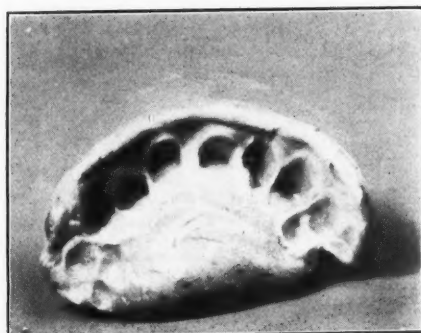


Fig. 31
Wax bite.

A small amount of inlay wax is warmed over a dry flame or warm water as preferred, and this is forced over the prepared tooth, a little excess being allowed to cover the adjoining teeth. In the finished model this will produce an accurate contact point and a sharp reproduction of the contour of the adjoining teeth.

Chill the wax, but do not remove it. Then take a plaster impression, one that will set as rapidly as possible, and remove (Fig. 30). The bite is taken by means of good bite wax (Fig. 31). There is obtainable at the present time a bite wax having incorporated with it finely pulverized metal, and which produces sharp imprints of the teeth. This wax heats readily and is easily chilled.

MODEL-MAKING

Unlike any piece of work that is made from a ductile material such as gold, the porcelain jacket crown is either right or wrong when completed. There is no happy medium. It therefore behooves the porcelain operator to exercise the greatest care and skill in making models and dies as carefully and as skillfully as possible.

The first point to be considered will be the making of the die from the impression in the copper band. The material best suited for this purpose is amalgam. Some operators prefer copper amalgam owing to the possibility of using it over and over, while others use either filling amalgam or some make of model alloy. Possibly the greatest disadvantage to be found in the use of copper amalgam is the fact that the time required for the complete setting of the material is too long, as much as twelve hours for its complete setting being usually required. While filling alloys have the advantage of rapid setting, they will incur needless expense. Model alloys therefore seem to fit the requirements fairly well. Most of the model alloys will set within six hours. At the present time an alloy made especially for the needs of the writer which has all the requirements of an ideal alloy is obtainable, one which will set ready for swaging in about two hours.

Since the writer has little faith in the use of cements for dies, no mention of their manipulation will be made in these pages.

Some variation in preparing and packing the tube impression is made by different operators, two of which will be described. In one method a piece of paper is wrapped around the tube impression and is extended to some distance above the tube. This is tacked and placed in a plaster mix, which, when set, tends to reinforce the paper while the amalgam is being packed into the tube. When the plaster has set, the tube is packed with amalgam and set aside until sufficiently hard for manipulation.

The most convenient method of die-packing, and one that conserves material as well as saves considerable time, is the following:

Mix the amalgam in any preferred manner and then place a small quantity in the tube impression. With a small amalgam plugger, pack the amalgam into place, making sure that the instrument does not scrape the side walls of modeling compound in the tube. Add to the first application of amalgam until the cup is filled. Then tap the tube on a hard surface until the mercury begins to come to the surface.

Now take a large amount of amalgam and pack some against the amalgam in the tube until sure of a consolidation of the added material with that in the tube. Then, with the fingers, press toward the center of the tube, making a tapered die, to which of course sufficient amalgam is added to give sufficient size. With the fingers, smooth the amalgam until it is tapered, with the base ending at the periphery of the cup, and lay it aside until set. Long dies should be made, as they facilitate easy manipulation in crown-building.

It is advisable when mixing amalgam to have an excess of the mix, which will be useful in packing the teeth adjoining the amalgam die.

In order to preclude the possibility of the water being drawn out of the porcelain mix when it is applied, one of the most efficient methods, and one that serves in maintaining contact points also, is the use of amalgam for the teeth adjoining the die. Most often, in mixing amalgam, an excess will be mixed which is usually thrown aside. This excess is packed in the adjoining teeth, care being exercised in the packing so that the inlay wax in the impression will suffer no distortion. In order to secure good anchorage in the plaster model, it is advisable to imbed into the amalgam the head of a small nail, or preferably a brad, and allow the amalgam to set completely.

It will be recalled that an *X* was originally placed on the labial surface of the tube when it was prepared for the modeling compound impression of the prepared tooth. This is to be a guide throughout the building up of the jacket crown.

With a coarse garnet disk, the coarsest obtainable, grind the die slightly flat. This will enable the recognition of the labial surface when the die is first removed from the tube impression. Then trim the die so that it is even with the periphery of the tube. The small amount of heat generated while grinding will in most instances enable the die to be removed without warming.

Then the die is trimmed so that from the shoulder it is perfectly straight for at least three millimeters, being neither undercut nor flared. In explanation of this procedure it will be readily understood that where a die is ground so that it tapers, commencing at the shoulder, it will be found difficult to remove the matrix. If it flares away from the shoulder, removal from the model may be made difficult, due to the fact that the flare may cause interference when passing over the contact points. Many models are broken in this way.

A number of years ago, in experimenting with the action of porcelains during fusing, and with the idea in mind that the necessity of relieving the shoulder before the initial bake could be done away with, the author became satisfied, after numerous tests with matrices having aprons of different lengths, that an excess of platinum at the shoulder or at the margin of an inlay cavity would resist the pulling effect of the porcelain while fusing. Where the porcelain mix was properly condensed, if an apron of at least two millimeters in smaller teeth (or more if required) is used, there will be no necessity for relieving the shoulder. In order that the apron may be made to extend beyond the shoulder of the die and be removed easily, it is necessary therefore that in trimming the die it extend straight from the shoulder to the required point, and the die can then be tapered to the end. The object of tapering can be



Fig. 32

Dies in place in the impression.

easily understood when mention is made that it must be easily removable from the model.

The labial side of the die, which was slightly flattened before separation from the tube, is now grooved; that is, a slot is cut into it in the shape of a V, which slot should extend from the end of the straight portion of the die (about three millimeters from the shoulder) to the end. This slot not only prevents rotation in the model, but easily identifies the labial surface when it is being handled.

The die is now placed in position in the inlay-wax-plaster impression, the grooved side labially. Where care has been exercised in obtaining a good impression, the die will go into position readily. With a little wax, usually the wax from the impression, the die is fixed securely. A

very small quantity of vaseline or a little oil, preferably the latter, is painted over the die, and the impression is ready for the separating liquid and subsequent plaster. (Fig. 32.)

Allow an excess of plaster to project beyond one side of the model. This will later aid in producing an articulated model with the use of an articulator.

Separate the model from the impression as soon as ready. The die should be removed from the model at this time. This is done while the model is still untrimmed, preventing breakage if the die has not been trimmed to a taper but has been left somewhat bulky, as is sometimes done by beginners. The most convenient way of removing the die is the following:

With a small sharp instrument or a small knife blade, remove the plaster from around the gingival portion of the die for a considerable distance. Then trim the top of the model until the end of the amalgam

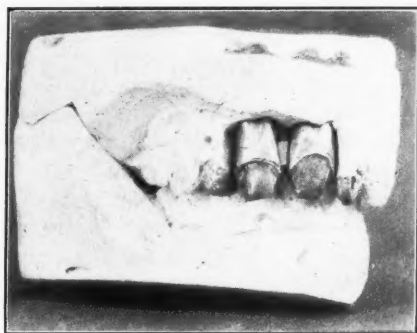


Fig. 33
Dies in articulated model.

die is discernible. Cut a little way around the die so that the die can be pushed out with the finger.

The model is then trimmed as thin as necessary and a deep portion cut around the die at the top of the model wide enough for a finger. The gingival portion is now trimmed so that the matrix will not rest against the plaster when the die is in position.

At the end where excess plaster was allowed, cut a deep V, crossing that with another V. Paint some separating liquid into these.

Trim the bite wax, place in position and pour with plaster, allowing some of the plaster to fill in the V cuts. When set, separate and trim the excess plaster. (Fig. 33.)

7616 Phillips Avenue.

(To be continued)

Elimination of Pain in Dentistry*

By W. B. Lee, D.D.S., Eugene, Oregon

PAIN DEFINED

Pain was wisely instituted by nature. Pain makes us realize that some external danger is threatening which we may avoid, or that harm has already been done to the body, requiring our care if we would escape more serious consequences. The intensity of pain is dependent upon physical factors and is greater the more we abandon ourselves to it, while diversion and will power mitigate even exceedingly painful sensations. Kant, by concentrating his thoughts upon a definite subject, overcame the tortures of gout. At night, after the mind has ceased to be occupied with changing impressions, pain is felt more intensely. Education, character, intelligence, race, age, sex and general health are great factors in the origin and manifestations of afflictions.

HISTORY

Elimination of pain has been sought since the earliest times, and dentists have made the world much happier by their discoveries but have failed to profit as much as was possible by the use of these aids.

In 1855 electricity was first used, employing the positive and negative poles to carry the drugs into the tissues—the modern *ionization method*.

The first hypodermic syringe was invented in 1845 and was greatly improved upon by Alexander Wood, whose inventive genius made hypodermic medication possible. Chloroform injections were used and proved too painful. Morphine was successfully employed for neuralgia, being injected near the nerve trunks. This anesthesia must have been general rather than local. Nothing proved of much value until 1884 when Koller introduced cocain, which soon became very popular with the professions.

While the public look to the printed page for their education on *painless dentistry*, it has been the strictly ethical students who have given the profession all the scientific and worth-while knowledge that we employ today in the elimination of pain. Thanks is due to them for that boon, which makes dentistry more popular and its practice more endurable.

This paper might be entitled *Painless Dentistry*, but that term has been placed in such disrepute that I have called it *Elimination of Pain in Dentistry*. There is so much material available upon this subject

* Read before the Southern Willamette District Dental Society.

that we could study it for hours, but I will just briefly touch upon a few of the many means at our command in the performing of dental operations.

It behooves us to avail ourselves of every known means to accomplish painless results, a possibility limited only by the effort and ability of the operator and by the proper study of each individual and his needs, using psychology and one or more of the remedies at our beck and call.

SUGGESTIVE THERAPEUTICS

"Our life is under *suggestion* from the cradle to the grave," and such a valuable therapeutic agent should be studied and used each hour by every dentist. Suggestion is that power which assists in gaining the confidence of your patient, in the presentation of your personality, in quieting the nervous and in overcoming the fears incident to dental operation. Our success depends upon the individual and our own ability to use suggestion properly. Many times adverse suggestion by careless, neglectful, or incompetent operators has left a deplorable psychological suggestion in the laity's mind. Many like to exaggerate their sufferings in the dental chair, thereby causing others, especially the receptive minds of children, to form erroneous ideas that must be overcome by suggestive efforts on our part. Assure your patient that you will use some drug to save him suffering. Keep everything out of sight that might frighten or be apprehensive to him. All conversation should be of such a nature that it will inspire confidence in your ability and interest in the patient, as well as quiet his fears. Many suffer from their own mental conclusions, and the right suggestion will often alleviate their mind and consequently their suffering. An idea of pain will increase pain.

DESENSITIZING PASTES

Desensitizing paste has been used with success in a large number of cases.

Swabs and sprays are of great value many times. Children will submit to having deciduous teeth removed that are not firmly attached, with an application of ethyl chlorid, or aconite and iodin. Bromural and other anodynes are of assistance if given half an hour before an operation.

GENERAL ANESTHESIA

There are cases where the best dentistry can be done only under a general anesthetic. No doubt the average dentist hesitates to use this valuable agent, but there is every reason why he should employ this assistant; for, as Dr. DeFord says in this *Lectures on General Anes-*

thesia in Dentistry, "by right of discovery and inheritance, the greatest benefactor the human race has ever known, Horace Wells, the discoverer of surgical anesthesia, was a dentist." Morton, another dentist, was the first to discover the anesthetic properties of sulphuric ether. And Rolland, Dean of the Dental College of Bordeaux, France, gave us that combination called Somnoform. Had the rank and file of the dental profession followed in the footsteps of these dentists and made practical application of the truths they gave us, dentistry today would be far in advance of its present status. General anesthesia in dentistry not only saves the patient from untold suffering and nerve strain, but controls those nervous, hysterical patients who so sap the dentist's energy and vitality.

LOCAL ANESTHESIA

Novocain or procain is still the accepted local agent. Its possibilities are limited only by the skill and knowledge of the operator. After listening to instructions and seeing Dr. Arthur E. Smith and others operate under block anesthesia, one becomes enthusiastic concerning its merits and possibilities.

Having tried many blocks intra-orally, I am convinced that there is no operation that cannot be performed painlessly under its influence. But it is no easy job; rather, it requires an intimate knowledge of the anatomy of the part, a study of each individual type, and many details, if it is to be accomplished with no unhappy results. I am compelled to admit that some cases are not perfectly satisfactory to me, but I cannot blame the method. If we increase our knowledge and improve our technic and try again, we soon learn that there is a way. We perform about half our cavity preparations under block anesthesia, and it is surprising how many patients return and say that there is no use in being hurt now.

I only wish that I could present in this paper more that I know would be of interest, but if I have recalled to memory or inspired any one to further effort, it will not have been in vain. Life must be progressive, and progress is obtained only by overcoming obstacles. *And There Is Always Another Fight Left.*

I have failed in a thousand cases,
But I still have the heart to try;
I am scared in a hundred places,
No darling of Luck am I!
In many a crucial hour
I have hoped and been scorned and kicked,
But never has Fate had power
To convince me that I was licked.

I have trusted and been mistaken,
 My friendship has been betrayed;
 I have struggled alone, forsaken
 By men who have had my aid.
 I have listened to those who have flattered,
 Their motives misunderstood,
 But my faith has remained unshattered,
 I believe in the ultimate good.

I ask for no unearned pleasure,
 No pathway through flowery lanes;
 I offer a full fair measure
 Of effort for all my pains.
 I'll try, though the pace be grilling
 Nor whine if I'm tripped or tricked,
 As long as my soul's unwilling
 To let me believe I am licked.

—S. E. KISER.

404 C. & W. Building.



[COOPERATION]

The practical work of both medical and dental students should be done in the same hospital. In no other way is it possible to establish in the mind of each class a knowledge of and respect for the work of the other. In no other way is it possible for the student of either class to see the inter-relationship of pathologic conditions or the necessity of collaboration in the treatment of many of these conditions.

—THORNTON.

Reminiscences—Mostly Anesthetic

By William Harper DeFord, D.D.S., M.D., Des Moines, Iowa

Second Article

After four months of intensive work-out, mostly in the extracting room, Dr. Ten Eycke, my preceptor, decreed that I should enter a dental college. In those days dental colleges were scarce, there being only about six, and as there was no dental college in Washington, D. C., my home city, and as the oldest and most favorably known dental college in the world was located in Baltimore, I chose to matriculate there.

Dr. Chapin A. Harris had founded this Baltimore school in 1839. On two different occasions he met with the trustees of the University of Maryland Medical School and pleaded with them to add two chairs to their curriculum, those of mechanical dentistry and operative dentistry. (There was no such word as *prosthetic* at that time.) His idea was to have students of dentistry take the complete medical course, graduate with the M.D. degree, and then practice dentistry as a specialty of medicine. Had Dr. Harris been successful in his attempt, dental colleges probably never would have been established as we now have them. The dental surgeon would have been as favorably known as the ophthalmologist, the gynecologist, the otologist, the heart and lung specialists, etc. Failing in that attempt, Dr. Harris organized the first dental college in the world, the Baltimore College of Dental Surgery. He then wrote the *Principles and Practice of Dentistry*, the first and for many years the only dental textbook.

The Baltimore College of Dental Surgery had a very able faculty and a clinic far beyond the necessities of the students in attendance, consequently clinical material of all kinds, especially for the extraction of teeth, was more abundant each day than could possibly be utilized. As I was the only student who had had any experience in nitrous oxid administration and extracting under nitrous oxid, the demonstrators frequently called upon me to spend an entire afternoon in the extracting room, and it was a helpful experience.

The faculty of this College had a unique way of teaching dentistry. In addition to the lectures and demonstrations by the regular members of the faculty, they brought in the outstanding members of the profession throughout the country, and these men remained a week or more, lecturing and demonstrating and giving clinics in that particular branch of dentistry in which they dominated all other dental practitioners. Among these I recall W. H. Atkinson of New York, the G. V. Black of that day; Norman Kingsley of New York, who devoted his entire time to correcting irregularities of the teeth (the term *orthodontia* had not yet been coined), and, by the way, Norman Kingsley was a

sculptor, and his bust of Christ in marble was pronounced the finest ever made. Also, there was Dr. Clowes of New York, who at eighty years of age was and had been for forty years making amalgam fillings and bridges of amalgam, long before such bridges as are now made were ever thought of; E. Parmley Brown of Flushing, N. Y., recognized by everyone as the most skillful manipulator of gold foil in the State of New York; also Marshall H. Webb of Lancaster, Pa., who occupied in that State the high degree of eminence that Dr. Brown did in New York; J. Foster Flagg of Philadelphia, who advocated and used cements only as filling materials; Corydon Palmer of Ohio; Dr. Haskell of Chicago, who would usually remain a month or six weeks teaching the construction of continuous gum dentures; Dr. Riggs of Hartford, Conn., of pyorrhea fame, and a number of others, the very biggest men in the profession. It was certainly inspiring to come in personal contact with these giants of dentistry.

Men in the medical profession who had discovered some new disease or devoted their time to research of some pathological condition were rewarded by having their names used in connection with that condition, hence we have Bright's disease, Hodgkin's disease, Addison's disease, Vincent's angina, and, in keeping with this nomenclature, Riggs' disease. The term *pyorrhea* had not yet been coined, and the condition now known by that name was designated as *Riggs' disease* for many years. I have in my possession an original set of Riggs pyorrhea instruments procured from Dr. Riggs himself, and these certainly look crude compared with the sets of pyorrhea instruments of the present day. The original Riggs set consisted of just three instruments with large black ebony handles, each resembling in shape a bricklayer's trowel in miniature. Instrument No. 1 was beveled on two sides, No. 2 was rounded on the right side and beveled on the left, and No. 3 was rounded on the left side and beveled on the right side.

But Dr. Riggs had won renown, not only because he was the first man to make a systematic study of pyorrhea but also because he was the first man to extract a tooth under an anesthetic. I heard the following narrative from his own lips:

A man named Colton was delivering a popular course of lectures on chemistry in Hartford, Conn. On a cold, rainy night a young dentist, Horace Wells by name, happened to pass the hall where these lectures were being delivered and, as a matter of curiosity, stepped inside to see what was going on. It just happened that the subject of the discourse on that evening was nitrous oxid. At the close of the lecture Colton invited those in the audience who desired to inhale the nitrous oxid gas to take seats in chairs arranged on the platform. Most of us who have attended hypnotic demonstrations where the hypnotized subjects would be turned loose to amuse the audience. This lecture of

Professor Colton's was conducted in much the same manner. He had those who volunteered to inhale the nitrous oxid gas to the degree of stimulation turned loose to amuse the audience. It was such a rainy and stormy night that the audience was a small one, only a handful of people being present. Dr. Wells became very much interested in the lecture, and when volunteers were invited to take their place on the platform, he was one of the first to respond. The hall was equipped with long wooden benches for seats, and after inhaling the nitrous oxid he must have imagined that he was a squirrel or a monkey, because he leaped from the platform, hopped from the back of one bench to another to the end of the hall, reversed, and hopped back again to the stage, taking his seat on the platform. After a few minutes his shin commenced to pain and, upon leaning forward and pulling up his pants, he discovered blood stains. It occurred to him that he must have received some kind of injury while under the influence of the nitrous oxid. If that were the case, he saw a great future for the use of nitrous oxid in dentistry.

The experiences of the evening weighed so heavily upon Dr. Wells that at midnight he went to the home of his friend, Dr. Riggs, and awoke him from his slumber to relate to him what he had seen and experienced. He asked Dr. Riggs whether, if Colton would come to his office the next day and administer the nitrous oxid, he would extract a tooth for him. Dr. Riggs consented to do so. According to agreement, Colton administered the gas, Dr. Wells became the patient, and Dr. Riggs removed an upper third molar. Upon awakening, Wells remarked, "A new era in tooth pulling—I did not feel so much as a pin prick!"

Colton opened an office in New York for the painless extraction of teeth, and I knew personally one man who took instruction under Colton, Dr. Laird W. Nevius of Chicago, later of Minneapolis. Thus Horace Wells became the discoverer of surgical anesthesia, and an impressive monument has been erected at Hartford, Conn., to commemorate this event.

Prior to this discovery, there were only two methods known by which anesthesia could be induced, and these were so crude as hardly to justify mentioning. One method was to place the patient on the floor and have him make his limbs rigid; then a strong man on each side would lift him simultaneously and quickly to his feet. If done quickly enough, this was said to produce anemia of the brain, resulting in anesthesia for a few seconds.

The second method was the jiu-jitsu method. The patient was grabbed by the throat, the carotids on both sides being compressed, which was said to produce a temporary anesthesia. If too much force was exerted, the patient was killed.

The dental college course in those days commenced the first week in October and continued until about the middle of March. But the Baltimore College of Dental Surgery had a unique feature, for in so far as I know it was the only dental college that offered such an opportunity to students. While the regular course of study terminated about the middle of March as stated, the clinic room was open every day in the year, except Sundays and holidays, from 9 a. m. until 5 p. m. Some member of the faculty was present each day and the clinic was as large as during the regular course. As only five or six students found it convenient to avail themselves of this opportunity, those of us who remained had our choice of patients and could do just the kind of work we desired. I spent much time in the extracting room, and it was no unusual thing for me to extract a hundred teeth or more a day under nitrous oxid anesthesia.

15 Rawson Block.

(To be continued)



[FOR THE GOOD OF THE MAJORITY]

Experiences out of the past teach that law is the basis of liberty and that all good law aims to establish progress, prosperity and happiness; but the necessities of the present demand that the scope of liberty be international, not local, and that legislation which aims at the betterment of the group necessarily curtails the liberties of individuals and minorities.

—RINEHART.

An Old-Time Partial

The accompanying photographs show a silver partial plate that was loaned to us by Miss Marguerite Zwerg of Sheboygan, Wisconsin. Miss Zwerg states that this plate was made for her grandfather at least fifty-seven years ago, and probably before that time.

The manufacture of porcelain teeth in this country dates back to 1844, when Samuel S. Stockton of Philadelphia first produced them. Previous to that time they had been made in France.



This plate shows the remains of a posterior tooth secured by a platinum pin, and it is probable that the anterior teeth are attached in the same manner. There is evidence of one wire clasp.

While this prosthetic restoration does not date back as far as some others that are in museums and private collections, yet it is an interesting example of the work done in the middle part of the nineteenth century.

Togo's "Discursions"

Mr. Editor of Harmless though Moral Magazine devoted to Dentistry and allied industries.

Hon. Sir:

Entire absence of ideas containing sufficient vitamins to constitute suitable mental diet for adult readers has caused temporary cessation of thought currents via U. S. Mail; which will now be resumed if possible—thank you!

Colossal disturbance of comparatively recent occurrence called World War produced many results of strangely far reaching consequences; among chief offenders is present firmly implanted conviction in minds of practically all persons regarding magic power and properties of Printers Ink when used in sufficient quantities for necessary length of Time. Before occurrence of more or less Hon. War already referred to only occasional persons outside of College Halls could be discovered who could give intelligent definition of expensive collection of letters necessary for spelling word "P-r-o-p-a-g-a-n-d-a." At present moment all Women's Club, Y.W.C.A.'s and other etc. make extensive use of this National Nuisance when launching campaigns for further funds to be subsequently devoted to the "Further Elucidation of the Utterly Obvious" or other objects equally important to Sacred Cause of Public Welfare.

"What connection has disastrous condition thus ruthlessly revealed with Private Practice of Dentistry, Public Health and other Major Sports?" is now somewhat intelligent question which might possibly proceed from Editorial Brains or other hidden source of unsuspected mental initiative. Connection is plain and pernicious is polite point respectfully cited by Oriental correspondent who will now proceed to call attention to facts as follows.

"Decay of teeth is most prevalent disease of Twentieth Century Model of somewhat Human Being" reasons Hon. Prof. of Propaganda, "therefore sufficient Printers Ink, Slogans, Posters and other wholesale measures should be employed to destroy it just as similar means were employed in time of National Necessity to almost overnight convert millions of Private Savings Accounts into Available Cash Balances for War Credit, Expenses, Etc." Whereupon Hon. Prof. of P. gleefully takes pencil in hand and prepares delicious copy and several Slogans carefully calculated to produce results of alarm and reform in minds of all readers. One terrible fact is apparently overlooked however by highbrow enthusiast; who is undoubtedly moved chiefly by sincere and unselfish desire to greatly benefit suffering Humanity by means of

aforesaid literary effusions; Possessor of Savings Account can by mere stroke of Mr. Parker's well advertised product instantly treat himself to delightful sensation of having become Exalted Patriot; of having done as directed by plainly printed instructions on outside of package; and entire transaction is complete with all parties duly performing parts as assigned by Casting Director.

Please note utter impossibility of any like immediate and simple proceeding in case of possessor of dilapidated chewing equipment who has possibly been convinced by copious output of Propaganda that something should be done about it. Can such possessor take pen in hand and instantly transfer required number of assorted Dental Products into the diseased upper end of his alimentary tract? Can any amount of Education, Propaganda, Slogans or Campaign Songs cause well-fitting gold inlays to grow where destroyed approximal contacts existed only a moment ago? The answer being No in every language, graceful hop will now be made to next point which is that when tooth sufferer becomes convinced and starts out toward attainment of better mouth conditions he at once falls completely into the hands and chair of some man on outer door of whose office is brief statement that person on inside is a "Dentist." Long and various contacts with inhabitants of offices so labeled is responsible for laconic but deliberate statement that in about 80% of cases such is not the actual fact experienced by those who step inside. Individual of office so labeled is frequently only a tinker who has never been able to master intricate problem of which side up to place a Stillson wrench in order to loosen attachments uniformly made with right hand threads, or a Clairvoyant Fortune Teller and Snake Charmer who has been obliged to forsake his proper calling on account of advanced stands taken by most Municipal Police Department. In other words Mr. Editor: No matter what the Public is educated to wish or ask for it will only receive the amount of attention and benefit which can be delivered by the actual flesh blood Dentist individually appealed to.

In conclusion respectful attention is called to important items bearing on questions as now being considered. Propaganda is superficial and dangerous form of Public appeal which may produce in the Public mind feelings of Education and Enlightenment where such are entirely unjustified by existing fact of almost total basic Ignorance.

Education is greatest boon to Man but is in nearly all cases an extremely slow growth and increasingly difficult and exasperatingly tedious as Students advance toward higher and more Public Spirited Levels.

Hoping you are the same,

Togo.

Resolutions Adopted by the American Dental Association

AUGUST 24, 1926

Whereas, Up to the present the attention of dentistry has been centered mainly on the work of restoring lost dental tissue, and

Whereas, The only hope of real progress lies in the prevention or early control of dental disease, and

Whereas, Prevention, to be effective, must be applied early in the life of the individual and early in the life of the tooth; be it

Resolved, That dental service must begin early and be systematic and periodic in order to obtain the maximum of prevention with the minimum of operative work and to educate the child properly in habits of oral hygiene; and be it

Resolved, That in the aim to attain prevention of systematic and dental disease (a) no defect is too slight to receive definite attention; (b) the temporary teeth should receive as much care as the permanent ones in order to promote the proper development of the jaws and head and to maintain function; (c) particular care and attention should be given to developmental pits and fissures, whether occurring in primary or secondary teeth, *or whether decay is or is not present*; and be it

Resolved, That the American Dental Association declares for the principles and practice of children's dentistry and maintains that the most effective dentistry that can be done for any individual is the service rendered between the second and fourteenth years of age; and be it

Resolved, That this Association calls on all dentists to uphold these fundamental principles and to do everything possible to promote the practice of children's dentistry by professional and public education, and in public and private practice.

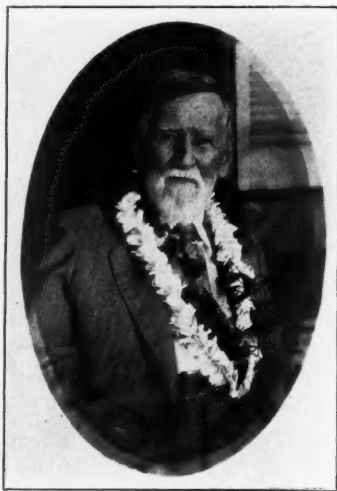


John Morgan Whitney, D.D.S.

PIONEER DENTIST OF HAWAII

John Morgan Whitney died peacefully on November 17, 1927, after several years of gradual enfeeblement due to his advancing years. He was 92 years and one month old.

Dr. Whitney went to Honolulu in 1869 when the city was a small,



JOHN MORGAN WHITNEY, D.D.S.

isolated, little-known seaport town, with few white people, and practiced dentistry there for more than fifty years. He was the first graduate dentist to practice in Honolulu. It is a remarkable fact that he was able to continue his professional activity until he was ninety years old. He was an authority on dental surgery and wrote several papers of recognized worth on the subject.

New Issue of Polk's Dental Register Soon to be Published

The publishers of the *Dental Register* announce that information for the Fourteenth Revised Edition is now being gathered.

A questionnaire has been mailed to every dentist in the United States and Canada whose address could be secured and all members of the profession are urged to fill out and return this blank at once. A return envelope has been enclosed for convenience.

It does not follow that because you are a member of a dental society, or because your name and address appeared correctly in the last edition of the *Register*, it will be included in the 1928 issue. A new, first-hand registration is being made and every dentist should appreciate the importance and value to him of having this information published.

Former classmates, friends, patients, business acquaintances and others require this, and without it the impression is created that those not included have passed away.

A most commendable spirit of good-fellowship is indicated by several who make it a practice to forward complete lists of dentists in their cities or counties through clipping the information from the classified telephone book or otherwise. This cooperation is of great assistance to the publishers, and similar lists from others naturally will be appreciated.

However, the most important thing is for *you* to send in *your* registration at once.

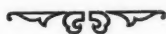
There is no obligation involved—it takes but a few moments—and the matter is of sufficient importance to justify your careful attention. An up-to-date, complete directory of the profession is very desirable at this time, and we again urge your immediate action.

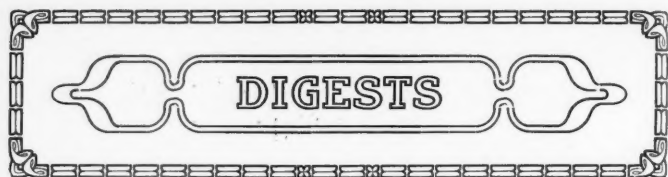
Please take one of these steps at once, either

1. Complete and return the information blank you received or
2. Write for a blank to be forwarded to you.

Those who have retired or are engaged in other occupations are noted in the *Register* as *retired*. Membership in the American Dental Association also is indicated. Information is wanted from *all* who have graduated in dentistry or registered to practice in the United States, the Philippines and the Canadian Provinces.

If *you are among the living*, indicate it by communicating with the publishers, R. L. POLK & Co., 538 South Clark St., Chicago, Ill., U. S. A.





A CONSIDERATION OF EFFORTS FOR PREVENTION

By A. C. FONES, D.D.S.

More than ever is consideration being given to the prevention of human ills, and the dental profession has assumed a position of importance. However, it must be clearly understood that operative and therapeutic procedures are not *preventing* disease, but only *controlling* it. Jaws are not being properly developed and the majority of teeth are poorly calcified. Consequently dentists are concerned in (1) controlling disease that has become established and (2) doing everything possible to prevent the incidence of disease.

Under the first heading come prophylactic odontotomy advocated by Dr. Hyatt, radiography with bite-wing films developed by Dr. Raper, and prophylaxis by dental hygienists.

The prevention of dental caries, periodontoclasia, and malocclusion are the greatest problems. Sound enamel must be developed before birth and during childhood by good nutrition and hygiene. Individual knowledge of the factors essential to the development and health of the cells is necessary to prevent periodontoclasia. This will give the investing tissues a high resistance. The orthodontic problem may be partly solved by a normal diet and vigorous use of the organs of mastication.

Control and prevention must not be confused. Each dentist must be prepared to teach general health methods in his daily practice. A great deal of the public health education has been given by the dental hygienist, and twenty-six states have enlisted her aid in a far-reaching program for the prevention of dental disease.

Dentistry, perhaps more than any other profession, has the *knowledge* and the opportunity to practice *true prevention*.—*The Dental Cosmos*, December, 1927.

BRIDGE ABUTMENTS ON VITAL TEETH

By J. RUSSELL MITCHELL, D.D.S.

The ease in making inlays has promoted careless work and a failure to develop technical skill on the part of the dentist. The failure of inlays as restorations is not due to the principle of the method, but to the failure to apply the principle properly.

The devitalization of teeth for bridge abutments is a thing of the past. The use of pins as an added source of anchorage is advisable. The retentive power of an inlay is increased tenfold by the use of a pin, which, if properly used, will not devitalize teeth. It is hard to place a pin in an upper first bicuspid and the lower anteriors, but it is being done continuously. Three-quarter crowns are better adapted for lower first bicuspid than are pinlays.

On anterior teeth used as abutments a cast hood is placed in conjunction with either three pins or a groove. The three-quarter crown is difficult to construct and adjust satisfactorily, especially on molars. On these teeth it is really an M. O. D. inlay with a lingual plate resting on a shoulder, and no pins are used.

The gold shell crown has proved most valuable for strength and durability. The occlusal surface, when ground, should have the general characteristics of the normal tooth, and the band may be fitted to just above the gum line instead of under it. This will eliminate the chief objection. When the crown is cast to this band, it is called the direct method.

The indirect method is to make an amalgam die mounted on an occlusal cast on an articulator. 1/1000 gold or platinum is burnished over this die, and the inlay wax is carved to form, invested and cast. Abutment margins that adjoin pontics should be carefully finished before the impressions for the bridge is taken, as it is difficult to finish them after the pontics are in place.—*The Journal of the American Dental Association*, December, 1927.

METHODS OF COMBATING GENERAL MALNUTRITION OF SIGNIFICANCE TO DENTAL TEACHERS

By SHERMAN L. DAVIS, A.B., A.M., PH.D.

There is strong evidence that the parathyroids are closely related to the assimilation and fixation of lime, though the method is by no means clear. Inadequate fixation of lime salts is believed to be the cause of extreme nervousness in children and of the rapid breaking down of the enamel. Other reasons may be the lack of lime in the food and the absence of necessary vitamins. However, unless the conditions are favorable, an excess of calcium salts will not raise the calcium concentration in the blood above normal.

Ultra-violet rays will bring about the fixation of lime, as will also substances containing cholesterol, such as fats and oils. Vitamins play an important part.

A diet is deficient in lime generally because of unbalance, too much refining in its preparation, and an exhausted soil in which the cereals and vegetables were grown.

The first requisite is a sufficient intake of calcium, and the second is an adequate amount of Vitamin A. The latter is found abundantly in the dairy products. Nine grains of lime a day is the minimum for an adult. Vitamin D, found in cod-liver oil, hastens the fixation of lime.

Roughage is essential to good nutrition, cleansing the intestinal mucosa and improving the muscular tone. This may be provided by whole wheat, bran, leafy vegetables and cellulose.—*The Pacific Dental Gazette*, November, 1927.

A CONSIDERATION OF SOME IMPORTANT FACTORS IN THE TREATMENT OF SUPPURATIVE PERIODONTOCLASIA

BY BENJAMIN TISHLER, D.M.D.

Not many years ago so-called pyorrhea was believed to be incurable, and this belief was due to a great extent to an ignorance of biology. Treatment was empirical. However, suppurative periodontoclasia is curable, and this has been substantiated by clinical results.

Lack of confidence in the results is a strong factor in failure, because the treatment is carried on in a half-hearted manner and success is not easy to attain, but results from close attention to detail. The metabolic disturbance found in periodontoclasia is based on biologic laws and these must be understood, because every injured body cell has a tendency to heal as soon as the irritant is eliminated. The use of strong medications will prevent or delay this action.

Traumatic occlusion is shown by motility, though this is not easily detected in the early stages. If the teeth are thoroughly dried, the areas of attrition may be observed. Grinding the occlusal surfaces is not easy and must be done with great care, or much harm will result. Study models should be made. The healthy marginal gingiva has a thin edge with a definite outline. Any change, even though the color is normal, is an indication of cell injury. Gingival hypertrophy is often seen in the mouths of the young and is frequently due to traumatic occlusion.

From a questionnaire sent out a few months ago it was found that few periodontists of recognized standing practiced gingival surgery or used light therapy or vaccines. The majority depended on root curettage.

When the resistance of the mucous membrane is lowered, there is a tendency for free calcium to escape from the blood vessels. This unites with the pericemental fiber ends, and root deposits are formed.

The amount of pus bears no relation to the prognosis of the case,

and in 95% of the cases where the root deposits have been removed the discharge of pus will stop and the mucous membrane will become firm and pink. According to Adams and McCrea, the use of medicaments in suppurative periodontal treatment is not indicated. They are often injurious and will prevent healing rather than aid it.

The technic of root curettage is important and many of the instruments used are not suitable for the purpose. A large blade is not efficient and cannot be handled skillfully. Sharpness is of paramount importance. Files are inefficient and out of date.

Personal hygiene is important. A small toothbrush with stiff bristles used with a normal salt solution is indicated and a modification of Charters brushing technic is advised.—*Dental Items of Interest*, December, 1927.

RETAINERS IN PARTIAL PROSTHESIS

By HENRY W. GILLET, D.M.D., F.A.C.D.

Among the devices in common use is the split retainer exemplified by the Peeso pin and tube and the Roach split-ball and tube. In non-vital teeth these may be used with impunity, but when a cavity must be cut in a sound tooth or a small cavity enlarged to use them, then they are dangerous and the operator is responsible for the death of the pulp, whether it occurs in ten days, ten weeks or ten years.

The claim that cement has the same thermal conductivity as gold is not true. It is 1/600 that of gold, and in straight inlay work a bulk of cement is advisable, but when an attachment is added to the inlay, the tendency is to reduce the amount of cement to a minimum. The public will soon be in the position where it will not tolerate any risk to the vitality of the pulp.

The flat wrought clasp is unsatisfactory, because it does not fit and is a food-trap. Decalcification of enamel results. The wrought clasp of half-round wire is very little better. The cast clasp as advocated by Dr. Nesbett also is dangerous to the integrity of the enamel. Complex pieces of prosthetic work with the clasps included are cast in one piece and are a mechanical absurdity. They disregard all known principles of volumetric changes in metals, waxes and investments.

The round-wire wrought clasp reduces to a minimum the undesirable features of clasps and is adaptable to nearly every type of case met in practice. These are stabilized by lugs seated in recesses made in inlays or fillings.

Elasticity is the essential characteristic necessary in the metal used for a wrought clasp. The greater the length of the clasp, the further it

can be flexed without permanent deformation. Therefore, when permanent elasticity is required, make the clasps as long as possible. Also, the smaller the wire, the greater the deflection possible. The wire used is one that becomes very soft when correctly annealed, and very rigid and resilient when correctly heated. The gauge is 18 or 19 instead of 16, as is ordinarily used.

The wire is annealed by heating in a Bunsen flame to a cherry red, then quenching instantly in water or acid. When it has been shaped and all soldering has been completed, it is boiled in 30% nitric acid, then heated to 900° F. in an oven and held at that temperature for ten minutes. The heat is then cut off and the closed oven allowed to cool to 400° F. This should take at least fifteen minutes. Below 400° F. the temperature changes do not affect the physical properties of the metal.—*The Journal of Dental Research*, September, 1927.

ARE THERE CERTAIN CASES OF MALOCCLUSION IN WHICH ORTHODONTIC TREATMENT IS CONTRAINDICATED?

By DR. B. FRANK GAY

The author, after presenting his own opinions on various questions, gives the answers to a questionnaire sent out to a number of prominent orthodontists.

In regard to age the general opinion is that few cases can be treated successfully under six years of age, owing to the lack of cooperation by the patient. In adults the chances of success seem to vary according to the mental attitudes of the operator and the patient. Complicated procedures should be regarded as doubtful, and women make better patients than men. The general condition of the mouth is an important factor.

According to one man, orthodontic measures are contraindicated in the presence of:

- Caries.
- Salivary calculus accumulative.
- Serumal calculus accumulative.
- Chronic suppurative periodontoclasia.
- Chronic extensive periodontoclasia of certain types.
- Pericemental infections.
- Dento-alveolar infections.
- Unhygienic hypertrophy.
- Chronic persistent hypertrophy.
- Seriously neglected hygiene.
- Any organized or definite infection.

Most of the other men concur more or less in this statement.

On the one hand, it would seem that uncorrected irregularities predispose the individual to pyorrhea, while, on the other, if pyorrhea is established, it is unwise to institute orthodontic interference until the disease is under control.

The effect of the mal-function of the endocrine glands on the success of treatment is so little understood that only a few of the men expressed any opinion in regard to it.

Most of the answers showed that orthodontia was of great benefit to those who suffered from cleft palate and harelip, and though the best of results were not always obtainable, yet everything possible should be done.

Patients with a mental deficiency seriously handicapped orthodontic treatment and sometimes made it impossible. The same applies to the lack of cooperation by patients or parents.

The special qualifications requisite for an orthodontist are put down as technical knowledge, patience, perseverance, and an insight into human nature.—*The International Journal of Orthodontia, Oral Surgery and Radiography*, December, 1927.



PRACTICAL HINTS

This Department is now being conducted from the office of The Dental Digest. To avoid unnecessary delay, Hints, Questions and Answers should be addressed to Editor Practical Hints, The Dental Digest, 220 West 42d Street, New York, N. Y.

NOTE—Mention of proprietary articles by name in the text pages of THE DENTAL DIGEST is contrary to the policy of the magazine. Contributions containing names of proprietary articles will be altered in accordance with this rule.

Editor, Practical Hints:

I have a lady patient, 45 years of age, who complains of a bitter taste coming from the left side of her mouth. This condition has been noticed for about two years. She has had several teeth removed on the left side and her remaining teeth are vital. Is there any way to account for this, as I am sure it is there because she is one of the kind that complains only when she is hurt?

T. F. M.

ANSWER.—The bitter taste of which you speak might be caused from infected teeth, infection in the nose or throat, or, very remotely, possibly from a combination of metals in fillings.—G. R. WARNER.

Editor, Practical Hints:

I am sending you radiograms of a case in which I should appreciate your opinion.

The patient, a woman, aged 35, is in good general health. About six weeks ago eczema started on face, neck and arms. She spent a month at a sanitarium and apparently cleared the eczema, but, upon leaving, it broke out again.

Clinical examination at the hospital showed nothing wrong except the infected teeth.

In your opinion would this be responsible for the eczema, and what would be your advice in the case?

T. P. C.

ANSWER.—Eczema is one of the conditions for which foci of infec-

tion are responsible. I should think, therefore, that it is highly possible that the left maxillary second bicuspid and maxillary central incisors are responsible for the eczema in this case. Of course, we cannot say that the right mandibular second bicuspid and first molar are not implicated in the plot. In fact, I should feel that these two might be responsible for their proportion of the trouble.—G. R. WARNER.

Editor, Practical Hints:

About four years ago I constructed artificial dentures for a man who is of a very nervous temperament. He wore the dentures for about six weeks, then came to my office one afternoon while I was very busy. I informed him that it would be about an hour and a half before I could do anything for him and asked him to come back later. He never came back, nor did I hear from him until about one year later when he sent his lower plate to be repaired. I repaired the case, returning it to him by mail and sending a statement for services rendered. I heard nothing more and received nothing for my trouble. About one year later he sent the denture for repairs again. This time I repaired the denture and returned it to him C.O.D. He refused to pay the C.O.D. charges and accept the package, which was returned to me. Now he claims that the dentures were never satisfactory, and that I am keeping them against his wishes and threatens to sue me for the amount he paid for the dentures.

I have been informed that I am in the right, and he can do nothing. I do not seek trouble but feel that I have done my duty. I should like to hear your opinion on the matter.

C. S. G.

ANSWER.—It is my opinion that any dentist makes a serious mistake to go into court over any dental bill, regardless of how sure he may feel of his rights and of what the real justice in the matter may be. If a patient is a crook or is wholly unreasonable and unjust in the position that he takes with us in such a matter, it will not reform him or change his opinion of us for us to beat him in court, and it would seldom, if ever, be likely that the amount we would collect (over and above what we could get through an arbitrating agreement) would be more than it would cost us for attorneys' fees, time lost from our practice, and nervous and mental energy distracted by such a proceeding.

But certainly in your case, where the amount involved is only the price of a repair, I should consider it the height of folly to permit the matter to be taken into court.—V. C. SMEDLEY.

Editor, Practical Hints:

I have a patient whose teeth are so badly worn down that the lower second molars are even with the gums. The other teeth are worn away in proportion.

The patient, a man, is about 40 or 45 years of age. He is in good health and his teeth are good. He has an end-to-end bite. What should be done in this case?

Chewing causes soreness of the gums, in the case of the lower second molars.

He has a four-tooth bridge on the upper left side, from first bicuspid to second molar.

K. F. R.

ANSWER.—Your case is evidently one in which the bite needs to be raised. Our procedure in such cases is, first, to obtain full mouth radiograms and articulated casts of the upper and lower teeth. We then open the bite to the desired point, which can be determined by tooth and face measurements. A vulcanite plate is then made for the upper jaw and sometimes for both upper and lower jaws, using the rubber itself to open the bite to the point determined.

The anterior six or eight teeth can be reproduced in the white vulcanite. The patient is obliged to wear this during construction of the case.

As the inlays, crowns or bridges are made and set, the vulcanite is cut out in the particular area in which these various replacements are to be used. In this way the bite is always fully balanced until the temporary plate can be finally discarded.—G. R. WARNER.

Editor, Practical Hints:

I shall appreciate very much any information on the following case:

I extracted an imbedded upper right third molar about a month ago and the patient says she has lost her hearing in her right ear.

E. A. D.

ANSWER.—Loss of hearing from the extraction of an infected mandibular third molar is so unusual that I do not happen to have come in contact with such a case. It may be due to a nerve injury and will in all probability correct itself in due course of time.—G. R. WARNER.

Editor, Practical Hints:

Will you please advise treatment for the following case:

The man, 41 years of age, has resorption of the gingival tissues

about the necks of the upper and lower anterior teeth, particularly the cuspids and first bicuspid, *on the labial side only*. Radiographs show no resorption of interproximal bone. The gums are healthy and of good tone, and the teeth in excellent condition. There are no pockets around the teeth involved. He smokes cigarettes, but is not what we might call an inveterate smoker or one who practices it habitually all day long. He is of a strong temperament and very nervous disposition—in other words, highly strung.

I am very anxious to be of service to this patient and he is depending on me to stop this resorption. Am I doing the right thing when I massage his gums every other day and advise him to cut out his smoking and his brushing of the anterior teeth? Can I do anything else that might benefit him?

C. F. K.

ANSWER.—Without radiograms and study models the best I can do in diagnosing your case is to conjecture from the description. It may be a case of toothbrush trauma or of traumatic occlusion, or a combination of both. It seems to me that it would be perfectly all right to allow the man to brush his teeth, but to use the vertical brushing rather than the cross brushing. If you then relieve these six anterior teeth from all occlusal stress, I think you may feel safe in assuring your patient that there will be no further extension of the destructive process.

Relief of the occlusal stress is accomplished by rounding the labial angles of the mandibular teeth particularly and the lingual angles of the maxillary teeth slightly.—G. R. WARNER.

Editor, Practical Hints:

The patient, a woman, aged 40, is of nervous temperament. For several years the lower mandible has at times become partially dislocated. This will occur suddenly without warning while talking or eating. The pain is intense, but she is able to place the jaw back without assistance when it occurs. No pathological condition remains about the teeth or jaws. She has a fixed bridge from the left lower second molar to the first bicuspid, a three-tooth removable bridge on the lower right, and a removable vault bar appliance on the upper. The articulation of the teeth cannot be better than at present.

Can anything be done to relieve her condition?

E. B. J.

ANSWER.—I know of nothing that you could do to relieve this lady

of her misfortune except to advise her to avoid if possible putting her jaw into the position which throws it into dislocation.

If the condition is sufficiently distressing to justify it, she could wear an appliance passing over her head and under her chin to prevent the mouth from opening to such an extent as to permit the dislocation. In all probability, if she can prevent this thing happening for several weeks or several months, the muscles and ligaments will strengthen and readjust themselves so that it will be less apt to recur.

From your description of the condition of the teeth I should judge that they have nothing at all to do with this dislocating tendency of the jaw.—V. C. SMEDLEY.

Editor, Practical Hints:

What is the best medicament to use in stopping an *acute* periostitis, with no apparent swelling and with an exposed and inflamed pulp? I recently had such a case where I even infiltrated around a molar in an attempt to extirpate the pulp, but the patient felt sharp pain.

Also, how would you treat an acute periostitis of a tooth with a root-canal filling where the patient felt pain upon pressure over the apex? There was no apparent swelling.

M. S. H.

ANSWER.—Acute periostitis caused by an acute pulpitis should be immediately relieved upon the surgical removal of the pulp, if this is done under conduction anesthesia.

Acute periostitis in the case of a pulpless tooth is relieved by either removing the pulp canal filling and treating again or removing the tooth. I take it for granted that you mean pericementitis, because you speak of periostitis of a tooth and, as a tooth has no periosteum, it could not have periostitis.—G. R. WARNER.

Editor, Practical Hints:

I am enclosing an x-ray picture of a case where there is a swelling of the submaxillary gland to a very noticeable degree. It has existed for the last eight months without any perceptible change.

The patient's health is good, she having been referred to me by an M.D. in order to locate any trouble with her teeth in that region. Will you kindly tell me if you see anything which would indicate trouble?

The enlarged submaxillary gland is only on the right side.

A. J. P.

ANSWER.—This case of swollen submaxillary gland does not come from the teeth, so far as the radiograms indicate. I should suggest the possibility of calculus in the duct, and there is also the possibility of tuberculosis.—G. R. WARNER.

Editor, Practical Hints:

The other day I removed a partially impacted lower third molar and upon seeing the patient again discovered that the tongue was still numb, the same as when the novocain was injected.

I assume I have injured the lingual nerve and should like your opinion as to the probable outcome of an injury of this type.

E. C. M.

ANSWER.—The severing or the injuring of the lingual nerve with the mandibular nerve block injection is no doubt a possibility. I have never heard of a similar case, where the normal sensation did not eventually return. It is sometimes recovered in a few weeks. The longest time elapsing that I have heard of is seventeen months.—V. C. SMEDLEY.



DENTAL SECRETARIES and ASSISTANTS

Secretaries' Questionnaire

All questions and communications should be addressed to Elsie Pierce, care of The Dental Digest, 220 West 42nd Street, New York City.

NOTE—HAVE YOU A BETTER WAY? HAVE YOU A TIME-SAVING SHORT CUT? DO YOU KNOW A "STUNT" THAT LIGHTENS THE WORK OR MAKES FOR EFFICIENCY IN THE OFFICE? IF SO, WRITE TO ELSIE PIERCE, CARE THE DENTAL DIGEST, 220 WEST 42ND ST., NEW YORK. YOU MAY HELP A NUMBER OF GIRLS WHO ARE JUST BEGINNERS—AND YOU KNOW HOW YOU NEEDED HELP DURING YOUR FIRST FEW MONTHS IN A DENTAL OFFICE. OR IF YOU NEED HELP NOW WRITE TO ELSIE PIERCE—SHE'LL HELP YOU.

Dear Miss Pierce:

I noticed in a recent issue of THE DENTAL DIGEST a request from H. M., N. Dakota, for the cause of halitosis. Your answer was very complete. When I tell you that it took me years to learn what caused indigestion in my own case, I thought H. M. would appreciate information along that line.

I first discovered that coffee and a bad stomach are generally very closely related, especially when heartburn is one of the disturbing symptoms. Fried foods and rich meats and meat soups and many fruits eaten at the evening meal cause stomach disturbances and halitosis. Candies, sweetened fruits, jellies, preserves, ice cream and pastry products are not conducive to good digestion and sweet breath. Anything that ferments quickly should be eaten sparingly, and this is true especially of the evening meal.

DR. E. E. C., Wash.

We are indebted to Dr. E. E. C. for this advice and information. It is gratifying to have members of the dental profession take an interest in this department and its readers.

Dear Miss Pierce:

The ground-glass plunger of a hypodermic syringe has stuck to the

barrel. Could you please tell me what is wrong with it, and how it could be fixed? I wish to add that I am a constant reader of the *Secretaries' Questionnaire* and find it very helpful.

A. B., California.

ANSWER.—The sticking of the glass plunger of the syringe you mention is caused by improper cleaning of the syringe after using, some of the solution having adhered thereto and formed a coating, which has acted like a cement or glue. To remedy this difficulty, place the syringe in a tray of cold water and allow to come to a boil slowly. This should loosen the parts. May I suggest that care be taken to cleanse any hypodermic syringe thoroughly after using, especial care being taken to dry the parts carefully before reassembling. This is as important as its sterilization prior to using or filling with the anesthetic.

If any part of the syringe should break, you can send the good parts to the manufacturer, and for a very nominal sum it will be replaced. We trust this will solve your problem.

We are glad you enjoy the *Questionnaire* and find it helpful, for that is precisely what we want it to be to our readers.

Dear Miss Pierce:

Will you please explain to me what is meant by the term *saturated solution*? I hear it used by the Doctor when talking to patients, and I have seen it in some of the dental literature. I enjoy the questions and answers so much and find many helpful suggestions among them.

A. B. C., Colorado.

ANSWER.—When speaking of a liquid, the term *saturated solution* means a state in which a liquid holds all of a substance that it can dissolve; when speaking of a chemical compound, it is a state in which the affinities of all its component atoms are satisfied. In other words, for the former, which is no doubt that in which you are interested, it means that if you desire to make a saturated solution of bicarbonate of soda, to the amount of liquid used you must add bicarbonate until the liquid will take up no more. You can tell this when the bicarbonate no longer dissolves.

Dear Miss Pierce:

I am sending a suggestion that may be useful to some of the dental assistants who read *THE DENTAL DIGEST*. Sometimes a patient asks the assistant how to make a simple mouth wash. I have found that the following formula answers the purpose for a mouth wash and gargle and is easy to make from ingredients at hand in any household:

To one cup of warm water add a teaspoonful of salt and a teaspoonful of baking soda. These measures are level, not heaping.

I wish you would publish the approximate periods at which children's teeth erupt. So many mothers ask that question, and I want to make an intelligent reply.

E. A., Oregon.

ANSWER.—A baby usually starts to erupt its teeth at the age of from five to eight months. The teeth in the lower jaw usually precede those in the upper, except the lateral incisors. The usual growth is as follows:

The two lower central incisors, at the age of five to eight months; the four upper incisors, from six to nine months; the two lateral incisors, from twelve to fifteen months—also the first molars. Between these latter and the front teeth there will be a space for the canines or cuspids, which erupt at from eighteen months to two years. Following these the second molars erupt, so that by the time a child is two and a half years old it should have twenty teeth, called *milk, baby*, or, more properly, *deciduous* teeth.

The second or permanent set of teeth should begin to erupt during the fifth year, and by the time a child is twelve years old it should have twenty-eight teeth. The last of the set, called the *third molars* (wisdom teeth), do not usually begin to erupt until the seventeenth or eighteenth year. Of course these are general averages, and there are exceptions. The lower incisors may not be the first to erupt, or the teeth may appear in a different order, or a child may not erupt teeth until it is ten or more months old. Some are born with one or two teeth, or erupt a tooth or two when only two or three months old.

Many thanks for the mouth-wash formula!

Educational and Efficiency Society for Dental Assistants, First District, New York

Another milestone in the life of the Educational and Efficiency Society for Dental Assistants, New York, was passed at the regular meeting on December 13, 1927. It was the birthday of the Society, the close of six years of earnest, successful endeavor to help the dental assistant increase her efficiency through education, and by means of this increased efficiency raise the standard of service in dentistry. The future holds as bright a promise for further achievement.

Dr. LeRoy S. Edwards, President of the Second District Dental Society, New York, presented a delightful resumé of his trip to Alaska, illustrating the talk with lantern slides of views he had photographed himself. Miss C. M. Taylor, Instructor of Nutrition, Teachers Col-

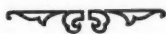
lege, Columbia University, gave a most instructive lecture on *Diet in Relation to the Nutrition of the Teeth*.

Following the holiday season, classes were resumed on January 5, 1928, when a group met with Dr. A. A. Brill, the well-known psychoanalyst, for a class on practical psychology. On Thursday evening, January 19, sessions of the laboratory assistance class were begun, to continue over a period of three or four weeks. Classes are free to members of the Society and are held each Thursday evening under the supervision of capable members of the dental profession. Instruction in other phases of dental assisting is being planned. The Director of Classes, Agnes F. MacNeil, may be addressed at 113 South Elliott Place, Brooklyn, N. Y.

On January 12, 1928, the Clinic Club presented table clinics on chair assistance, sharpening of instruments, secretarial and x-ray assistance before the Kings County Dental Society, Brooklyn. At the January 16th meeting of the Club the lecturer of the evening spoke on anesthetics, telling about the preparation of anesthetics, the proper method of sterilizing hypodermic syringes and needles, surgical instruments, and how to prevent rusting. A demonstration on the care of handpieces also was given, as well as a talk on rubber. All members of the Society are eligible for membership in the Clinic Club and are urged to join. Martha Hall, Acting Director, 221 Autumn Avenue, Brooklyn, will be glad to furnish further information. The next meeting of the Club will be held on Monday, February 20, 1928, when a demonstration on gas anesthesia will be given.

The Librarian announces a number of additions to the library, which now includes articles on subjects pertinent to the work of the dental assistant culled from current dental magazines, as well as a scrapbook on the history of dentistry, dental equipment and instruments. The contents of the library are available to the members of the Society, and the Librarian may be seen at any regular meeting.

The regular meeting of the Educational and Efficiency Society for Dental Assistants, First District, New York, will take place on Tuesday, February 14, 1928, at 8:00 p. m., at the Academy of Medicine, 2 East 103rd Street, New York. Charles F. Bodecker, D.D.S., F.A.C.D., Professor of Dental Histology and Embryology, Columbia University, will be the speaker. A cordial welcome is extended to the members of the dental profession and to their assistants.





EXTRACTIONS



No Literature can have a long continuance if not diversified with humor—ADDISON

No one cares how bad your English is
if your Scotch is good.

Somehow or other we are never much
impressed by the man who has to borrow
our pencil to show us that we are wrong.

MALE JUDY O'GRADYS

"I see you are wearing the same color
Christmas tie that I am."

"Yes, we're brothers under the chin."

(Patient)—Doctor, what can I do for
insomnia?

(Doctor)—Every evening keep repeat-
ing to yourself, "I am a night watchman!
I am a night watchman!"

Insects generally must lead a jovial
life. Think what it must be to lodge in
a lily. Imagine a palace of ivory and
pearl, with pillars of silver and capitals
of gold, and exhaling such a perfume as
never arose from human censer. Fancy
again the fun of tucking one's self up
for the night in the folds of a rose,
rocked to sleep by the gentle sighs of
summer air, nothing to do when you
awake but to wash yourself in a dewdrop,
and fall to eating your bedclothes.

HOW TO MAKE HOME BREW

Chase wild bullfrogs for three miles
and gather up hops. To them add ten
gallons of tan bark, one-half pint of
shellac, and one bar of home-made soap.
Boil 36 hours, then strain through an
I. W. W. sock to keep it from working.
Add one grasshopper to each pint to give
it a kick. Pour a little into the kitchen
sink; if it takes the enamel off it is ready
for bottling.—*Exchange.*

WISE CRACKS

The flivver owner: "Wouldn't that
jar you?"

The radio orator: "I'll tell the world."

The murderer: "Well, I'll be hanged."

The judge: "Fine."

The flapper: "No one has anything on
me."

The telephone girl: "I got your num-
ber."

The sausage-maker: "Dog gone."

The fisherman: "I'll drop a line."

The seamstress: "Darn it."

WELL SAID

And what are thoughts
But birds which light and fly?
And what are words
But traps to catch them by?

(Bildad)—What's the difference be-
tween a Scotchman and a cocoanut?

(Niblick)—I couldn't guess.

(Bildad)—You can get a drink from a
cocoanut.

Nobody has ever added up
The value of a smile;
We know how much a dollar's worth
And how much is a mile.
We know the distance to the sun,
The size and weight of earth;
But no one here can tell us
How much a smile is worth.

HOW TO END WARS

A delegate to the recent League of
Nations meeting proposed that it endorse
the idea of junking all armies and navies.
With all nations free and helpless,
it was said there could be no wars, and
that all one country could do when an-
other resented its act would be to sit
down and cry. Bulletins, if another war
should take place, may read something
like this:

LONDON.—A serious crisis has been
reached in relations between England
and Germany as a result of recent Balkan
developments. Berlin is understood to
have mobilized its debaters and called all
its voice throwing reservists to the colors.
The British War Office has asked Berlin
to cease its warlike activities and given
notice that unless it complies within
twenty-four hours England will begin
hissing.

* * *

PARIS.—That France will be drawn
into the conflict between England and
Germany is now regarded as certain. It
is now thinking of getting out an in-
junction to restrain both parties. The
French War Office, fearing it may not
be able to avert a clash, has placed orders
for 500,000 buggy whips, 1,000,000 stuffed
clubs, and 5,000 carloads of vegetables to
repel invaders. The border is reported
lined with a big force of Germany's
crack Invective Hurlers and Recrimina-
tion Hussars.

FUTURE EVENTS

THE PROSTHODONTIA SECTION OF THE EASTERN DENTAL SOCIETY will hold a most interesting meeting on Monday, February 6, 1928, at 8:30 P. M., at the Allied Dental Council Headquarters, 425 Lafayette Street, New York.

Various theories of occlusion in simplified and practical form will be demonstrated by the essayist, Dr. Victor Stoll, and in conclusion a modified technic that lends to simplicity will be elaborated, to the end that our bridge and plate work may be more scientifically and accurately constructed.

The committee again expects a large audience and urges an early attendance.

LOUIS I. ABELSON, *Chairman*,
S. CHARLES GARDNER, *Secretary*.

THE WESTCHESTER DENTAL SOCIETY will hold its next scientific meeting on Tuesday, February 28, 1928, at 8.30 P. M., at the Yonkers (N. Y.) Chamber of Commerce.

The essayist will be Louis I. Abelson, D.D.S., who will speak on the subject *Developments in Indirect Inlay Technic*.

All ethical practitioners are invited to attend.

A dinner to the essayist will precede the session.

THE NEW JERSEY STATE DENTAL SOCIETY will hold its fifty-eighth annual meeting at the Berkeley-Carteret Hotel, Asbury Park, N. J., April 18-21, 1928.

Essays—Wednesday and Thursday; clinics—Wednesday, Thursday, Friday.

All members in good standing in the A. D. A. are invited to attend. Membership card must be shown to prove eligibility for admission to essays and clinics.

The annual dinner of the Alumni of ZETA CHAPTER, XI PSI PHI FRATERNITY, Pennsylvania College of Dental Surgery, will be held on Saturday, March 17, 1928, at the Bellevue-Stratford Hotel, Philadelphia. For further information, address

DR. HOWARD H. SHEPLER,
908 Flanders Bldg., Philadelphia, Pa.

THE IOWA STATE DENTAL SOCIETY will hold its Sixty-sixth Annual Meeting in Des Moines, Iowa, May 1-3, 1928.

THE VERMONT STATE DENTAL SOCIETY will hold its 1928 meeting at Burlington, Vt., May 23-25, 1928.

THE VIRGINIA STATE DENTAL ASSOCIATION will hold its annual meeting in the Patrick Henry Hotel, Roanoke, Virginia, May 29-31, 1928.

THE INDIANA BOARD OF DENTAL EXAMINERS will meet at 8:00 A. M., June 18, 1928, at the State House, Indianapolis, Ind., in the House of Representatives room, for the purpose of examining all applicants with proper credentials. Applications should be in the hands of the Secretary one week before the Board meeting.

For applications, clinical requirements, and other information, address

J. M. HALE, *Secretary-Treasurer*,
Mt. Vernon, Ind.

THE NORTHEASTERN MASSACHUSETTS DENTAL SOCIETY will hold its fourteenth annual convention on June 25-27, 1928, at the New Ocean House, Swampscott, Mass. All ethical dentists are cordially invited to attend. Best of clinicians and exhibits, reduced hotel rates, golfing and surf bathing. For particulars, address

HENRY I. YALE, *Secretary*,
Peabody, Mass.

THE AMERICAN DENTAL ASSOCIATION will hold its Seventieth Annual Session in Minneapolis, Minnesota, August 20-24, 1928.

